Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

MONTHLY REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR

JULY, 1871.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1871.

MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE, STATISTICAL DIVISION,
July 17, 1871.

SIR: I present herewith, for publication, a summary of reports on the condition of the crops, with extracts from regular statistical returns and from casual correspondence; also, a brief history of the Department of Agriculture, and a notice of the resignation of Commissioner Capron; a chapter of recent scientific notes, a record of market prices, meteorological tables, &c.

J. R. DODGE, *Statistician.*

Hon. HORACE CAPRON,
Commissioner.

CONDITION OF THE CROPS IN JULY.

An average amount of rain fell during the past month, but its distribution was quite unequal. While one locality suffered from drought, another was deluged with rain. One station in Georgia returned a rainfall of nearly sixteen inches, while another reported but three and one-half inches; in Galveston, Texas, it was almost nine inches, and in San Antonio less than a third of an inch. Inequalities in amount of precipitated moisture always exist, but not always in a degree so marked. There is also reported a wide daily range of temperature in some of the most fertile sections, with summer heats by day and low temperatures and sometimes frosts by night—atmospheric conditions unfavorable to the growth of corn and some other crops.

CORN.

The returns of July show an increase of acreage, slight in some States, large in others; the New England States and New York, California, and Oregon failing to make an extension of the corn area. The area of the past year, assumed to be above thirty-nine millions of acres, appears to have been increased by fully three millions, of which two millions are in the Southern States. The increase of acreage in the United States is larger than ever before reported to this office, the average for all the States being above 8 per cent. This increase will not make a corresponding enlargement of the aggregate product, the average yield of the Southern States being less than the general average. The acreage in corn in eleven Southern States exceeds four-tenths of the total area of this crop, but fails to produce so large a proportion of the aggregate yield. The percentage of increase is calculated as follows: New Jersey, 2; Pennsylvania, 1; Delaware, 3; Maryland, 1; Virginia, 5; North Carolina, 9; South Carolina, 12; Georgia, 10; Florida, 7; Alabama, 11; Mississippi, 14; Louisiana, 15; Texas, 15; Arkansas, 24; Tennessee, 7; West Virginia, 5; Kentucky, 3; Missouri, 10; Illinois, 6; Indiana, 4;

Ohio, 3; Michigan, 3; Wisconsin, 7; Minnesota, 11; Iowa, 15; Kansas, 50; Nebraska, 30.

In Maine, New Hampshire, Vermont, and Rhode Island corn is not in high condition. June was too cool for this crop in Northern New England, and some injury was occasioned by frost as late as the 24th. Drought, with cool or frosty nights, has been injurious to the crop in New York. There is complaint of slow germination and backward condition in part of New Jersey, and considerable injury from a brown worm in Warren County. Frost and drought have wrought injury to corn in Pennsylvania, but recent showers and higher night temperatures are bringing the crop into fine condition. The crop is late, but improving, in Maryland.

The influence of cool nights has been felt in Virginia and throughout the valleys and plateaus of the Alleghenian systems; corn is consequently not so far advanced in growth as usual, except in warm soils, and its growth has been retarded by heavy rains which have obstructed cultivation; still it is vigorous, of good color, and promises a fine crop. Its condition is quite as good in North Carolina, and still better in South Carolina.

In the Gulf States heavy and frequent rains have deluged the bottom lands, upon which most of the crop of that section is grown; fields are therefore grassy and unpromising, yet the fine weather of the last two weeks has given great encouragement, and hopes are entertained that the injury may be fully recovered during the present month. Should this improvement continue, the enlarged area planted will give an unusually large aggregate of production and save the expense of heavy purchases elsewhere at a burdensome cost for transportation.

In the great corn granary of the country, the basin of the Ohio, Upper Mississippi, and Missouri, between the elevations of 500 to 1,500 feet above the sea level, the condition of the crop is above an average. Frosts have been injurious in some of the Territories. In portions of Utah the crop has been nearly destroyed by grasshoppers; in the northern portions of the Pacific coast corn is late but of good color. The following items of correspondence, from many of similar import, will illustrate further the condition of this important cereal:

Orleans County, Vt.—June 24, a heavy frost cut down the corn in the valleys.

Norfolk County, Mass.—The corn crop is a little backward.

Carroll County, N. H.—June was cool, and corn grew but little.

Wyoming County, N. Y.—Corn is not uniform. Some pieces are very forward; others are backward from the effects of drought and frost.

Erie County, N. Y.—Frosts about June 18 injured some pieces of corn; early planted fields are quite forward.

Ontario County, N. Y.—Corn looks well; some fields injured by a heavy frost June 17.

Niagara County, N. Y.—We have had the least rain for the last three months that has been known for thirty years.

Livingston County, N. Y.—June a cool month. Corn in some parts of the county damaged by a slight frost June 17.

Chautauqua County, N. Y.—The season has been dry since April.

Morris County, N. J.—Much corn was slow in coming up, owing to the drought, and many corn fields are therefore backward.

Union County, Pa.—Corn was planted late, but looks well and promises a good crop.

Delaware County, Pa.—Recent rains have brought forward the corn.

Clearfield County, Pa.—Between frost and drought the corn has had a hard struggle.

York County, Pa.—Late rains have been of much benefit to the corn.

Elk County, Pa.—Corn injured by frosts June 29 and 30.

Cecil County, Md.—Corn somewhat stunted in its early growth, but recent rains have benefited it.

Calvert County, Md.—Corn has been largely increased owing to the scarcity of tobacco plants.

Augusta County, Va.—Corn of good color and fine promise; season favorable for cultivation and destruction of weeds, but the nights are rather cool for rapid growth.

Henrico County, Va.—Greater acreage in corn than usual; crop promising in spite of drought.

King George County, Va.—In spite of late plowing and seeding, the corn is better and more forward than usual. Perhaps it has been too much stimulated. Promises an abundant crop.

Nelson County, Va.—Corn, whenever it has been kept clean, is very promising.

Norfolk County, Va.—Corn, up to June 15, looked better than for five years. Heavy rains then injured it, causing a loss estimated in some cases at one-third.

Northampton County, Va.—Corn in some places injured by hail.

Rockbridge County, Va.—Corn looks well, but short for the season. May have a fair crop.

Washington County, Va.—Worms injuring the corn.

Bath County, Va.—Corn short, but stands well and is of good color.

Alamance County, N. C.—Corn has been well worked and looks tolerably, but it has been much injured.

Bertie County, N. C.—Corn crop looked finely till waist high, when the *bud worm* and *scatter worm*—probably the same insect—have nearly destroyed the crop, although it was generally replanted.

Duplin County, N. C.—Corn a poor stand, especially in low, wet lands.

Greene County, N. C.—Corn 25 per cent. better than last year.

Mecklenburg County, N. C.—Corn well worked, and promises, with good weather, a better crop than last year.

Rockingham County, N. C.—With continued favorable weather, the corn crop will be larger than for ten years.

Union County, N. C.—Corn promising; early planting now silking and tasseling.

Sampson County, N. C.—Corn promising on light lands.

Newberry County, S. C.—Corn promises better than for ten years past; season has been excellent.

Carroll County, Ga.—Upland corn fine, but best land too wet for good crops.

Chattahoochee County, Ga.—Corn injured by the rains of May and June.

Dougherty County, Ga.—Corn increased 10 per cent. in acreage, but heavy rains have injured it, causing it to shoot and tassel at three feet high; the crop cannot exceed last year's.

Early County, Ga.—Corn cut short by heavy rains, occurring nearly every day from the middle of May, with wind, hail, and lightning. Last year this county raised 60,000 bushels of corn.

McDuffy County, Ga.—Rain has stimulated the corn and made it grassy.

Monroe County, Ga.—Too much rain for the corn, which does better on stiff clay than on light lands.

Quitman County, Ga.—Acreage one-third greater than last year, and crop, so far, good, though injured by wet in the uplands.

Spalding County, Ga.—Upland corn looks well; bottom corn injured by rain.

Sumter County, Ga.—Corn good, and promises, with continued good weather, a large crop.

Jackson County, Ga.—Corn on bottom land almost a failure through excessive rain.

Jackson County, Fla.—Corn crop excellent, promising a heavy yield; acreage doubled.

Madison County, Fla.—Rapid growth of stalk and shuck, but grain cut short by unfavorable weather.

Clarke County, Ala.—Corn on the uplands better than last year; creek and river bottoms drowned out; late planting up, but the grass has got the start again.

Greene County, Ala.—Corn prospects gloomy; acreage planted 20 per cent. in advance of last year, but heavy rains drowned out much, and delayed working till more was lost.

Marengo County, Ala.—Corn crop short; on rich lowlands have had too much rain.

Pike County, Ala.—Much corn washed out by rain, which continued so as to prevent replanting.

Randolph County, Ala.—Acreage planted 150, but drowning out of bottoms will reduce to 130; had but five or six clear days in nearly three months.

Dallas County, Ala.—Corn has deteriorated; sudden change from excessively wet weather to drought has injured the corn.

Attala County, Miss.—We never had poorer crops of corn, but, with favorable weather, they will greatly improve.

Grenada County, Miss.—Long continued rain has injured the corn, but it has improved since the weather became propitious. Corn, acreage about 15 per cent. increase. Daily range of thermometer in the shade from 85° to 92° F.

Lee County, Miss.—Corn in many places in bad condition, the grass rendering it difficult to clean the rows; where well cultivated it grows finely.

Yalabusha County, Miss.—Corn injured by rain and scarcity of labor.

East Baton Rouge County, La.—Corn seriously damaged but more will be planted; the cold, wet spring and the May storms of rain and wind seriously interfered with farm work.

La Fayette County, La.—Much larger acreage in corn, but the crop will be cut down to an average by rain.

St. Mary's County, La.—The violent storms of May and June may have injured the corn 25 per cent., but otherwise it looks well.

Washington County, La.—Corn has suffered from excessive rain, but with improved weather comes a prospect of an average crop.

Claiborne County, La.—Heavy rains have made the grass grow so fast as greatly to impede corn cultivation.

Carroll County, La.—Corn very good, better than for many years.

Rapides County, La.—At least one-half the acreage planted will not return the seed; there will not be a bushel of home-produced corn in the county by Christmas.

Bee County, Texas.—Corn planted at the last of January did best; general time of planting is in February. Later plantings are getting dry.

Lampasas County, Texas.—Severe drought. If it does not rain within a week there will not be a half crop of corn.

Rusk County, Texas.—Drought and extreme heat are cutting short the corn.

Dallas County, Texas.—No rain in four weeks; without speedy rain corn will be seriously injured.

Union County, Ark.—More corn and less cotton than last year; scarcity of corn and consequent loss of stock has stimulated this cereal growth. Laborers are neglecting their own crops and working round for corn and meat for their families.

Dyer County, Tenn.—Corn more promising than for years.

Grainger County, Tenn.—Late rains and hot weather have greatly benefited the corn.

Robertson County, Tenn.—Corn now growing well, but has been damaged by the blue bug.

Obion County, Tenn.—Best corn crop seen in the State.

Anderson County, Ky.—Corn acreage the largest ever known; double that of last year, and the crop in better condition than for years.

Henry County, Ky.—Corn looks exceedingly well, promising an abundant crop; with continued fine weather, the crop of the county will be the largest ever grown.

McCracken County, Ky.—Corn suffering for rain.

Shelby County, Ky.—Corn looks fine and is unusually forward, but somewhat injured by chintz.

Cole County, Ky.—Corn doing excellently. The sweet-corn sent by the Department is now in silk.

Daviess County, Ky.—Corn crop very large and looks better than for ten years past. The chinch-bug is attacking it.

Berkeley County, W. Va.—Corn uneven and unpromising. Fields have generally been replanted, and in some instances this has been repeated.

Brown County, Ohio.—An unusual breadth of clover sod plowed during winter months and planted with corn, but worms have been destructive and much corn ground has been replanted.

Portage County, Ohio.—Corn exceedingly fine, dry weather not having hurt it at all.

Adams County, Ohio.—Corn healthy but uneven in size, owing to much replanting, caused by cut-worm and web-worm.

Huron County, Ohio.—Corn never looked so well this time of year.

Morrow County, Ohio.—Corn never known to be more promising; the acreage is large.

Holmes County, Ohio.—Corn never promised a heavier crop at this time of the year.

Washington County, Ind.—Corn short and suffering for rain.

White County, Ind.—Corn promises the best crop ever raised in the county.

Jasper County, Ind.—Crops never looked better.

Hancock County, Ind.—Corn suffering from chinch-bugs, worms, and moles.

Brown County, Ind.—Weather too dry; scarcely any rain in June; corn wilts in the heat of the day; with rain it will yet make a good crop, for it has been well worked.

Calhoun County, Mich.—Corn on low lands injured by cold winds and occasional frosts.

Clinton County, Mich.—From May 5, no rain fell for six weeks. About one-third of the corn planted failed to grow.

Branch County, Mich.—Corn never better and very forward.

Gratiot County, Mich.—June was a cold month. A heavy frost on the night of the 15th cut down the corn in some localities, but it has nearly recovered.

Will County, Ill.—Corn much in advance of last year, but the crop will not exceed the average.

Wayne County, Ill.—If we have rain soon, we will have the largest crop of corn ever raised here.

Macoupin County, Ill.—Corn promises exceedingly well.

Fayette County, Ill.—Corn looks well but needs rain. The chinch-bug did much damage to corn adjoining wheat fields.

De Witt County, Ill.—Chinch-bugs in the corn, doing much damage. More corn has been planted than usual, and it seems unusually vigorous.

Putnam County, Ill.—Corn excellent; some damage by the chinch-bugs.

Macon County, Ill.—Chinch-bugs have commenced on the corn.
Sangamon County, Ill.—Chinch-bugs at work on corn, and will bring the crop below average.
Clinton County, Ill.—Corn suffering for want of rain.
Wabash County, Ill.—Drought threatens the corn.
Crawford County, Ill.—Dry weather injuring the corn.
Greene County, Ill.—Chinch-bugs injuring the corn.
Tazewell County, Ill.—The fly has attacked the corn-fields, and I fear many acres will be destroyed.
Schuyler County, Ill.—I fear the corn crop will be materially damaged by the chinch-bug, which has attacked it four weeks earlier than usual. Some farmers plowed under spring wheat destroyed by the bug and planted the ground with corn. In every instance the corn has been utterly destroyed.
Effingham County, Ill.—The chinch-bug is damaging the corn crop. The loss will depend much on the season; if rain is plenty, it will be light; if dry, much greater.
Iroquois County, Ill.—In some localities the chinch-bug is injuring the corn, but the crop is, nevertheless, unusually promising.
Peoria County, Ill.—Chinch-bugs leaving the wheat and going for the corn.
Lee County, Ill.—Corn never better. It never was as forward, stands well on the ground, is healthy and large. The weather is all that could be desired.
Montgomery County, Ill.—Chinch-bugs injuring a fine stand of corn. Weather favorable.
McHenry County, Ill.—Corn in tassel.
Hancock County, Ill.—Corn unusually promising. The chinch-bugs have done some injury, but generally they only injure from ten to twenty rows.
Williamson County, Ill.—The acreage of corn has been greatly increased in consequence of the clearing of new ground and the diminished acreage of cotton. An abundant yield is promised.
McDonough County, Ill.—Chinch-bugs have attacked the corn, and are doing some injury.
Green County, Wis.—Corn never looked better.
Dane County, Wis.—Corn, of which there is an increased acreage, is unusually promising.
Dunn County, Wis.—Corn looks well and bids fair to be a good crop.
Bremer County, Iowa.—Corn looks better than ever before at this season.
Dallas County, Iowa.—Our corn crop is unusually fine; I never saw a better prospect at this season.
Chickasaw County, Iowa.—Corn and other crops very forward for the season.
Jackson County, Iowa.—Corn promises a fine crop.
Muscatine County, Iowa.—Corn more than usually promising.
Hardin County, Iowa.—Our corn now gives the best promise for twenty years.
Cherokee County, Iowa.—Corn is earlier than usual, and looks remarkably well.
Decatur County, Iowa.—Chinch-bugs, after destroying the wheat, have commenced on the corn.
Page County, Iowa.—Corn never looked better. The chinch-bug has, however, been at work upon it.
Marshall County, Iowa.—Corn far ahead of other years.
Allamakee County, Iowa.—Corn three weeks earlier than usual, and the best crop in fifteen years.
Story County, Iowa.—We never had a finer prospect for corn at this season.
Johnson County, Iowa.—The prospect for corn is better than ever known.
Delaware County, Iowa.—Earliest corn known for many years; the harvest will be nearly one month earlier than usual.
Floyd County, Iowa.—Corn never so fine at this season.
Marion County, Iowa.—Corn is growing finely, and promises an enormous yield.
Hancock County, Iowa.—Corn is larger than we ever saw it before on the 1st of July; generally four feet high.
Washington County, Iowa.—Corn was never farther advanced at this season.
Adams County, Iowa.—Corn very forward; some now stands shoulder high.
Wayne County, Iowa.—Chinch-bug leaving the wheat and attacking the corn.
Mahaska County, Iowa.—Corn never looked so well at this date; it is now as high as the horses' backs.
Sherburne County, Minn.—Corn looks well, but in spots cut-worms have been at work.
Steele County, Minn.—Corn looks well; the crop will equal the average.
Freeborn County, Minn.—Corn splendid.
McLeod County, Minn.—Corn looks well; in some fields it is seven feet high.
Chase County, Kans.—The best prospect for corn ever known.
Osage County, Kans.—Chinch-bugs in countless millions at work on the corn crop. June 28th a great storm badly damaged corn.
Atchison County, Kans.—Weather too dry for corn.

Leavenworth County, Kans.—Corn very fine.
Neosho County, Kans.—Corn never better in Southern Kansas.
Nemaha County, Kans.—Chinch-bug injuring the corn.
Morris County, Kans.—Corn never looked better.
Howard County, Kans.—Corn splendid; never looked better.
Sedgwick County, Kans.—Corn planting commenced the last of March, and continued to the middle of June. Season good.
Coffey County, Kans.—Corn is doing finely. A few pieces would have been injured by the chinch-bug but for the heavy rains.
Bates County, Mo.—Corn could not be better; this season has been remarkably favorable; crops four weeks in advance.
Clay County, Mo.—Bad weather has interfered with corn culture, but vegetation being vigorous, the crops will be large.
Clinton County, Mo.—Chinch-bugs are injuring the corn.
Holt County, Mo.—Chinch-bugs at work at the corn, which otherwise would surpass any previous crop.
Jackson County, Mo.—Corn promises a heavy yield in spite of injury from storms during the last few days.
Lincoln County, Mo.—Two good rains at the proper time would make beautiful crops of corn.
Moniteau County, Mo.—Corn looking unusually well, but the chinch-bug is working on old lands.
Montgomery County, Mo.—No such prospect for corn in ten years past.

WHEAT AND RYE.

The crop of winter wheat has been harvested, the work commencing the first week in June, and much of it ending in June, that of the more northern sections terminating the first or second week in July. The ripening was fully a week earlier than usual. The condition of the plant in early spring was remarkably promising, and while rust on the blades was quite general in its prevalence, and insects were abundant, particularly the chinch-bug, the returns for the 1st of July indicate a condition somewhat above an average. The States showing a comparatively low condition are as follows: New Hampshire, Vermont, Massachusetts, Connecticut, Virginia, and all other Southern States except Texas. All the Western States present comparatively high averages, except Kentucky, (35 per cent. below,) and Indiana, (7 per cent.) The California average is 17 per cent. below. Among the States presenting higher average are Ohio, 4 per cent. above; Michigan, 8; Illinois, 7; Missouri, 3; Kansas, 7; Nebraska, 10; Oregon, 1 per cent. The winter wheat of Iowa and Wisconsin is in equally high condition, but in area it bears an insignificant proportion to the spring variety.

The returns concerning spring wheat are more unfavorable than for many previous years. Only Maine, New Hampshire, Connecticut, and Oregon exceed an average, while the percentages below an average are as follows: Missouri, 36; Illinois, 30; Indiana, 2; Ohio, 7; Michigan, 4; Wisconsin, 20; Minnesota, 30; Iowa, 18; Kansas, 15; Nebraska, 11; California, 5. The chinch-bug has been more destructive to the spring wheat than in any season since the inauguration of these reports. The extent of the mischief from insects, rust and drought, cannot be determined until the spring wheat has matured, and the yield and quality of the berry are indicated by the thresher.

The following items are presented from a mass of similar information in the July correspondence:

Carroll County, N. H.—Grasshoppers numerous, and damaging beans, potatoes, and grain. If dry weather continues, they will seriously damage grain.
Rockingham County, N. H.—All kinds of grain crops look well and better than last year.
Caledonia County, Vt.—Weather dry; crops suffering.
Addison County, Vt.—Drought has seriously affected many crops.
Windsor County, Vt.—The dry season continues.

Essex County, Vt.—Vegetation generally looking well. Warm days and cool nights in June.

New London County, Conn.—Weather dry in May and early party of June; heavy rains after June 15.

Hartford County, Conn.—Copious rains in June told favorably on all crops.

Genesee County, N. Y.—Wheat harvest will begin about 15th July. Straw short, but more than an average crop is promised.

Westchester County, N. Y.—The weather for the last two weeks has been cool, with showers which have helped winter grain and grass very much.

Seneca County, N. Y.—Early wheat cut July 1. The crop will be the best raised in the county for ten years. The last three weeks have been cool and very favorable for the filling of the berry. Only late-sowed wheat will be rusted.

Ontario County, N. Y.—A heavy frost June 17.

Onondaga County, N. Y.—Winter wheat has succeeded admirably; is a superior crop. Spring crops injured by drought.

Lewis County, N. Y.—July 4th the first rain for seven weeks fell in this county.

Allegany County, N. Y.—June unusually cold and dry.

Delaware County, N. Y.—Rye slightly damaged by a frost June 17, which killed beans.

Warren County, N. Y.—Frosts June 17 and 30 did no damage except to corn.

Livingston County, N. Y.—The crop of winter wheat and barley is unusually promising. Recent rains will insure filling. Slight frost June 17. Weather cool and favorable.

Niagara County, N. Y.—We have had the least rain for the last three months that has been known for thirty years. A frost June 30 did slight injury. Winter wheat looks better than it has for many years.

Putnam County, N. Y.—Crops generally are looking much better since recent rains, previous to which they had almost ceased to grow.

Cattaraugus County, N. Y.—Slight frosts June 16 and 17. Weather cool and dry.

Steuben County, N. Y.—Spring wheat, oats, and barley much improved by rains 18th, 24th, and 27th June.

Yates County, N. Y.—Cold and dry weather last three weeks of June. White frost June 18 and 30.

Warren County, N. J.—The wheat and rye crop never looked better. It is considered at least 20 per cent. above average.

Sussex County, N. J.—Wheat and rye looking finely.

Ocean County, N. J.—Wheat and rye have revived very much in consequence of June rains, and now promise more than a full crop.

Mercer County, N. J.—Wheat is fine, and if harvested in good condition will be an extra crop.

Morris County, N. J.—Heavy rains have improved the crops. Grain is better than was expected.

Salem County, N. J.—Wheat good, and well harvested.

Lycoming County, Pa.—Wheat is generally short, but stands well on the ground; is well headed and well filled with a fine, plump berry.

Huntingdon County, Pa.—Harvest is much earlier this season than it has been for many years. Winter grain will all be cut by July 4.

Butler County, Pa.—Wheat mostly cut and better than an average yield. Harvest earlier than for many years. Slight frosts June 29 and 30.

Lebanon County, Pa.—The wheat and rye harvest is half finished. Old farmers consider the wheat crop the best for forty-six years, and the rye crop the best ever grown. Heads with ninety to ninety-five grains can readily be found. The average length of rye-stalks in some lots is about eight feet. Some measure over nine feet.

Indiana County, Pa.—The wheat crop is good, and one-half has been cut and shocked. Harvest at least two weeks earlier than usual.

Bucks County, Pa.—The average of the rye crop is this year high, both on account of the low average of the crop for the past few years and the very heavy crop this year, exceeding the yield for many years, both in straw and grain.

Mifflin County, Pa.—We are just in the midst of wheat harvest, and it is much the best we have had for many years. A new variety of wheat, called Fulty wheat, originated in this county some five years ago, is about the only kind that will be sown. I think it a very fine variety of smooth wheat.

Luzerne County, Pa.—A warm, dry spring, with very cold nights occasionally.

Armstrong County, Pa.—Season generally cool and dry. Wheat short, but well-headed, and grain plump. Slight frost June 30.

Westmoreland County, Pa.—Harvest well advanced. Winter wheat promises to be a most prolific crop. A sharp frost June 30, injuring grapes.

Franklin County, Pa.—Grain nearly all cut, and of superior quality.

Lycoming County, Pa.—A long continued drought retarded all crops, but late rains have greatly improved them.

Bucks County, Pa.—Copious rains since the 15th of June have given an impetus to all growing crops.

York County, Pa.—The wheat and rye crops are generally housed, the harvest being about two weeks in advance of other years, and the yield promising to be full measure, even running over.

Snyder County, Pa.—The wheat crop is the best harvested for many years.

Pike County, Pa.—The prospect of wheat and rye has not been fully realized; the fly did more injury than was anticipated. Some kinds of wheat and rye did not fill well. There will, however, be more than an average crop. Harvest commenced June 26, the earliest harvest in forty years.

Union County, Pa.—Wheat now harvesting is a good yield, and well filled in the grain, but the straw is short.

Delaware County, Pa.—Much of the wheat has been housed in good condition; remainder ready; weather uncertain.

Lawrence County, Pa.—The season has been very dry. Fall wheat is above an average.

Clearfield County, Pa.—Wheat is short owing to the drought, but is well-headed and filled. Some has been cut—at least two weeks earlier than usual.

Greene County, Pa.—Wheat is all cut, and is a good crop. The Tappahannock still maintains a good reputation.

Baltimore County, Md.—Wheat magnificent in quantity and quality. Rye never better.

Cecil County, Md.—Wheat much better than was anticipated. The early rust affected only the leaves and not the stems. Heads well filled. Harvest unusually early.

Frederick County, Md.—Wheat, in quantity and quality, exceeds any crop of the past sixteen years.

Montgomery County, Md.—Wheat promises better than for several years past.

Queen Anne County, Md.—White wheat so far as threshed yields poorly, but red wheat is turning out well, though the grain seems pinched by too hasty ripening. Wheat, as a whole, below average.

Washington County, Md.—Wheat will average 20 bushels per acre. Some fields reaching 30 bushels. Barley about 30 bushels.

Augusta County, Va.—Wheat thin on the ground, but large and well filled. Harvest ten days earlier than usual.

Botetourt County, Va.—Wheat looked promising within a few days of harvest, and then began to dry up. Many fields died out in a few days.

Buckingham County, Va.—Wheat-yield about the same as last year, with 25 per cent. more of acreage. Probably one-fourth of the crop has been lost by smut. It will be very difficult to obtain good wheat in many localities.

Fauquier County, Va.—The wheat crop not of uniform excellence, but of better average character than for years, and harvested in better condition.

Henrico County, Va.—Wheat did not come up to general expectation at harvesting. Considerable drought.

King George County, Va.—Wheat harvest earlier than in forty years previous, and better than for several years past. The threshing is expected to be fair in quantity, and of superior quality—at least two-tenths better than last year.

Nelson County, Va.—Wheat crop of fair quality, and above the average of the past five years. Smut appeared, however, a few days before harvest, and the rapid drying of the straw forced an earlier cutting—at least a week before it would otherwise have been done. The grain will probably show considerable shriveling.

Spottsylvania County, Va.—Fair weather favored the maturing of the wheat, which was harvested ten days earlier than usual. A large proportion has been already threshed, and the yield is superior in quality, and abundant in quantity. Not half the phosphates used as in former years, and but little appreciable benefit where used.

Montgomery County, Va.—Wheat and rye harvested, and found to be below average in quantity, but superb in quality. Dry weather up to 20th June.

Nicholas County, Va.—Wheat a failure in many localities; highlands tolerable. Injured by rust, midge, joint-worm and weevil.

Fayette County, Va.—Wheat looked well, but much of it having fallen had to be cut before ripening.

Alamance County, N. C.—Wheat crop the worst failure ever known—not more than 40 per cent. of an average crop—good land not producing more than three or four bushels and much poor land not over one, two, or three bushels to one sown.

Mecklenburg County, N. C.—Wheat half a crop; thin on the ground and injured by rust. Many fields not worth cutting.

Rowan County, N. C.—Wheat, grain well developed; but only half the average amount of straw on the ground.

Caldwell County, N. C.—Wheat damaged with rust—not redeeming the fair promise of a month ago.

Martin County, N. C.—Wheat much injured by rust.

Greene County, N. C.—Wheat and rye almost a failure through a cold spell in May. Many farmers will not get back their seed.

Spartanburgh County, S. C.—Wheat short of expectations; much not worth cutting.

Burton County, Ga.—Wheat almost a failure.

Gwinnett County, Ga.—Wheat crop meager and inferior in quality, in consequence of rust and fly.

Heard County, Ga.—Wheat threshes out poor; season extremely wet.

Milton County, Ga.—Rust and fly have injured wheat very badly.

Murray County, Ga.—Wheat crop entirely worthless; many fields have not been cut, and of those cut many did not return the seed actually sown; whole crops not sufficient to resow the land. This misfortune the result of excessive rains, producing rust.

Wilkes County, Ga.—Barley, wheat, and oats have been threshed; wheat poor, mainly from rust.

Spalding County, Ga.—Wheat injured more by rust than was anticipated; some crops, however, were very fine, yielding from 20 to 30 bushels per acre.

Kaufman County, Texas.—Wheat, rye, and barley all yielded better than last year.

Williamson County, Texas.—Spring wheat cut from 10th to 15th June; quality, good; yield, 15 to 20 bushels per acre; drought for three weeks.

Bexar County, Texas.—All small grain harvested the first days of June; wheat averaged 16½ bushels per acre; in some cases reaching 40.

Washington County, Ark.—Wheat harvest June 10, ten days earlier than usual; crops light; injured by frost in April, and afterwards by red rust.

Henry County, Tenn.—Wheat crop small; many fields yielding but three or four bushels per acre.

Humphreys County, Tenn.—Reduced the wheat crop one-half; some fields not cut.

Jefferson County, Tenn.—Wheat crop an entire failure in some parts of the county; general average not over 50 per cent.; harvested in good condition, but it has not matured well; grain not plump; red-bearded or Lancaster wheat the best in the region.

Knox County, Tenn.—Bearded wheat did better than the smooth, and on elevated lands better than on low lands.

Rhea County, Tenn.—Rust has injured wheat; some farmers pastured their wheat.

Sullivan County, Tenn.—Wheat half a crop, but harvested in good condition between 8th and 18th June, ten days earlier than usual; Tappahannock decidedly the best variety.

Gibson County, Tenn.—Wheat greatly damaged; some fields on low lands not worth cutting; wheat market opens at $1 50 per bushel, the usual price being $1.

Adair County, Ky.—Wheat almost a total failure; scarce enough harvested for seed.

Franklin County, Ky.—Early wheat frost-killed and plowed up. Late wheat thin on the ground, but the grain is good and heavy, though injured by late frost. Rye almost a failure; straw heavy, but light-headed.

McCracken County, Ky.—Early in the spring wheat looked finely, but about the time of heading it took the blade-rust, causing the straw to become thin and soft, so that the wheat lodged and fell down. Some crops almost ruined.

Mercer County, Ky.—Georgia, white, Tappahannock, and all the early varieties of wheat were greatly injured by the frosts of spring, which opened at least two weeks earlier than usual.

Pulaski County, Ky.—Wheat promising on the 1st of March, but since then the fly-rust and frost have nearly destroyed it.

Shelby County, Ky.—Early wheat almost an entire failure, but the later rains have raised the later wheat to almost 65 per cent. Rye looked well, but on harvesting was found deficient in grain.

Scott County, Ky.—Wheat in good condition and of superior quality, but crop short; about 90 per cent. of average crop.

Columbiana County, Ohio.—Wheat harvest commenced June 22, and promises to be excellent, both in quality and quantity.

Crawford County, Ohio.—Wheat nearly all cut; a few farmers finished cutting in June, which has not happened more than once in a quarter of a century. Plenty of rain in June.

Lorain County, Ohio.—Winter wheat coming out finely; it is partly harvested.

Fairfield County, Ohio.—Wheat, especially the smooth varieties, injured by frost.

Holmes County, Ohio.—Wheat was all harvested July 6; a portion of it too ripe. The first wheat cut in the county was on June 17.

Morrow County, Ohio.—Wheat promised an unusual crop, but rust and weevil have injured part of it.

Adams County, Ohio.—June 24, wheat nearly all harvested. The quality of the grain is not as good as last year, in consequence of frost, midge, rust, and scab.

Portage County, Ohio.—Wheat is fully an average crop, with as plump a berry as could be desired. No trouble from insects.

Champaign County, Ohio.—Wheat reduced below average by frost in April, which damaged early varieties, and rust, which nearly destroyed the late stools. Tappahannock is more injured than any other variety.

Tuscarawas County, Ohio.—Weather favorable for the wheat harvest, which is nearly completed. The berry shows that our soil is deficient in lime; not being filled out as

plump and full as one would expect, from the favorable spring we have had. It was a common remark, that the spring was as desirable as could be wished to develop the wheat crop, being cool and comparatively dry.

Erie County, Ohio.—Weather favorable for wheat harvest, much of which has been cut; fine plump berry, and the crop is the best for several years.

Meigs County, Ohio.—The fly was active in wheat sown on high ground, especially stubble, but on bottom lands the crop is heavy and fully up to the average.

Coshocton County, Ohio.—Wheat harvesting commenced June 20, unusually early. The dry weather of May shortened the crop in some localities, but the grain is of excellent quality.

Vinton County, Ohio.—A dry spring, fly and drought have shortened the wheat crop.

Miami County, Ohio.—Wheat is being rapidly harvested. It is much the largest crop ever harvested in the county. Barley all harvested in splendid condition; it will average 45 bushels per acre.

Hamilton County, Ohio.—Wheat cut, and considered the best for ten years.

Hardin County, Ohio.—Many fields of wheat were struck with rust on the leaves, and although it did not get on the stock, it stopped the growth, causing the grain to shrink to half its size, and the straw to break down before it could be cut; of five acres of the Tappahannock wheat, my crop will be almost an entire failure, although it looked very promising a week or ten days before harvest; the same has been the case with almost all kinds of wheat in certain localities.

Huron County, Ohio.—The wheat prospect is not as good as in May. "Rust and blight on the leaves will shrink the grain."

Madison County, Ohio.—Wheat never known better.

Medina County, Ohio.—Spring wheat is the greatest failure I ever knew. Drought and worms have so damaged it that not one-fourth of the fields are worth harvesting. Some farmers have plowed them up and sown corn for fodder, and more would have done so but for the grass seeds sown with the wheat.

Ashland County, Ohio.—The season has been very favorable—every crop more forward than usual, a large amount of wheat already cut.

Johnson County, Ind.—Wheat is threshing out below the expectations of the farmers. The average of this county will not exceed ten bushels.

Fountain County, Ind.—Season forward, and all vegetation far advanced. Some wheat is short, owing to dry weather, but the berry is generally very good.

Washington County, Ind.—Season dry, and all crops suffering for rain. Wheat all harvested in good order. It stood thin on the ground. The berry of all bearded varieties is full and plump; a part of the smooth varieties very much shrunk. The crop is below average.

White County, Ind.—The wheat crop is one of the best ever raised in this country and has been harvested two weeks earlier than in any preceding year.

Howard County, Ind.—Wheat cut two weeks earlier than usual, but the berry was not well filled in some fields.

Franklin County, Ind.—Wheat abundant in straw, but not well filled generally, owing to rust on the blades and fly.

Pike County, Ind.—The grains of wheat are good, but the yield will be reduced 33 per cent.

Jasper County, Ind.—Crops never looked so well. Showers every day.

Elkhart County, Ind.—Wheat ready for the reaper June 23 and 24. Some cut on these days, but on the 26th the harvest was general. It never was so early. Twenty-five years ago wheat was harvested June 28.

Madison County, Ind.—Weather very dry in Indiana. Wheat not so good as was anticipated; all harvested.

Ripley County, Ind.—Red rust attacked the wheat blades before the wheat headed, ruining them. The fly was also injurious in some places. The wheat crop will fall considerably below the average.

Marion County, Ind.—The wheat crop is about an average in quantity and quality. The harvest was the earliest ever known.

Parke County, Ind.—Wheat all harvested; the weather has been too warm and dry, and the yield will not be over nine bushels per acre.

Noble County, Ind.—Wheat harvest earlier than usual. The greater part of the crop will be cut before July 4. Wheat generally of good quality, although in some localities somewhat injured by rust. The yield will be more abundant than for many years. Weather favorable for harvesting.

Dubois County, Ind.—Wheat all cut; yield average. Some fields of poor or hilly ground were not cut; straw fallen and no grain. Barley is very fine; on some good ground the heaviest ever seen in the county.

Cass County, Ind.—Wheat all cut in good order, and some in the stack. Tappahannock wheat, sent from the Department, doing the best.

Boone County, Ind.—The wheat crop, in quantity, is not sustaining the prospect of a month ago; frost, midge, chinch-bug, and dry weather are charged with this result.

White and smooth varieties are quite a failure, and portions of red and bearded varieties are not worth harvesting. Barley is extra.

Jennings County, Ind.—We have suffered from drought eight weeks.

Newton County, Ind.—This has been the best season that has been in fifteen years, all things considered. We have the best crop of winter wheat I ever saw in this State or Ohio. I feel safe in putting the county down at an average of twenty-five bushels per acre.

Brown County, Ind.—Wheat harvest commenced June 13 and ended about the 20th. Scarcely any rain in June.

Warren County, Ind.—Wheat all cut during June, ten days earlier than usual. Some fields were very good; others, owing to the chinch-bug, did not pay to cut. The acreage is one-third larger, hence a good yield in the county.

Benzie County, Mich.—Drought very severe. Hard frosts June 9 and 15; did much damage to wheat away from the influence of Lake Michigan.

Washtenaw County, Mich.—Weather very favorable, and the wheat crop is one of the finest ever raised in the county.

St. Joseph County, Mich.—Wheat mostly cut and in shock. It is one of the best crops ever harvested in the county.

Muskegon County, Mich.—Wheat looks well; slight indications of rust on heavy soils.

Calhoun County, Mich.—Wheat was cut 28th June, but the general crop will be ready the first week in July. The yield is above the average.

Clinton County, Mich.—I finished cutting my wheat in June. So far as I can learn, no wheat was ever cut in the county in June before, and no one else has yet cut any. The variety is Diehl. It grew on warm, gravelly soil.

Branch County, Mich.—The prospects for the farmer are, upon the whole, cheering. Wheat fine.

Ottawa County, Mich.—June was very dry; crops benefited by recent rains.

Macomb County, Mich.—Weather in June was dry, injuring the spring wheat. Barley and winter wheat in good condition. Harvest will commence July 3.

Genesee County, Mich.—A protracted drought in May and early June injured spring crops, but does not seem to have produced any bad effect upon winter wheat.

De Witt County, Ill.—"Winter wheat was all harvested before July 1, being at least two weeks earlier than ever known. Spring wheat, our main dependence, is an entire failure, owing to the chinch-bug. Not an acre will be harvested in the county. Our farmers are talking of abandoning, altogether, the sowing of small grains."

Fayette County, Ill.—Wheat good and all safely harvested. A larger acreage and better wheat than for several years.

Winnebago County, Ill.—We hope to get fine, plump wheat, but the yield will be somewhat diminished in consequence of unfavorable weather.

Hancock County, Ill.—Wheat (winter) on old ground is the best we have ever had. Spring wheat almost totally destroyed by chinch-bugs. All other crops are favorable. Altogether this is the great crop year, and will no doubt exceed any crop for years to come. The same favorable condition of the crops extends for one hundred miles around. Fall wheat is averaging twenty-two bushels to the acre, by measurement as threshed. We have had new flour to use in June, which has never been the case before. Vegetation and harvest have been two weeks earlier than usual.

Iroquois County, Ill.—Spring wheat destroyed by the chinch-bug; rye injured slightly.

Peoria County, Ill.—The chinch-bugs have destroyed the spring wheat and barley.

Massac County, Ill.—For four weeks before harvest the wheat suffered from rust; nearly every crop was injured more or less.

Lee County, Ill.—Wheat stands thin on the ground, but there is a plump, good berry. Wheat, rye, and barley never looked better.

Williamson County, Ill.—Wheat not as well filled out, nor the grain as plump as usual.

Bureau County, Ill.—Wheat almost a failure, from the effects of hail and the ravages of the chinch-bug.

McDonough County, Ill.—Spring wheat is greatly damaged by the chinch-bug. Very many farmers say that the spring wheat crop ought to be abandoned, and by them will be abandoned forever. It so happens that fall wheat, which our farmers have sown liberally, was never better, and, by ripening early, escaped the bugs.

Putnam County, Ill.—Spring wheat almost ruined by the chinch-bug; winter wheat good, but not much of it cultivated.

Macoupin County, Ill.—Wheat all harvested, and is the best crop ever harvested, both in quality and quantity.

Will County, Ill.—Spring wheat is nearly destroyed by the chinch-bug.

Schuyler County, Ill.—The probability is that the crop of spring wheat will be reduced below the average by the chinch-bug. Much of the wheat is utterly destroyed.

Tazewell County, Ill.—The fly has entirely destroyed the spring wheat. "I have not heard of a piece worth cutting."

Kankakee County, Ill.—The chinch-bug has been so destructive to the spring wheat that it is very probable that not an acre in the county will pay for harvesting.

Greene County, Ill.—Spring wheat "burnt out." Chinch-bug injurious to all crops.

Stark County, Ill.—The chinch-bug has injured the spring wheat, but the yield will still be better than last year.

Crawford County, Ill.—Weather dry; season very early.

Wabash County, Ill.—Wheat shrunken to some extent, the Tappahannock being worst, and the English least.

Carroll County, Ill.—The heads of spring wheat are filling hopefully. The production of winter wheat is nearly abandoned, but what little there is looks well.

Livingston County, Ill.—The chinch-bug is doing great injury to wheat and barley. Season fine.

Clinton County, Ill.—Weather hot and dry for six weeks. Wheat will average 15 to 16 bushels per acre, and is number one in quality.

Sangamon County, Ill.—Winter wheat has yielded a fair average crop; spring wheat almost a total failure, owing to the chinch-bug. Some few farmers plowed under wheat and planted corn. This, however, in some cases, has merely afforded a new supply of food for the bug. The winter-wheat harvest commenced June 10; weather in June remarkably dry.

Ogle County, Ill.—Spring wheat is a staple crop; injured somewhat by rust, but will yield an average crop.

Fond du Lac County, Wis.—Wheat is short, and generally thin: some pieces will scarcely yield the seed. The cool, wet weather is improving the crop.

Dane County, Wis.—Wheat below the average; rust and chinch-bugs have done much damage.

Pierce County, Wis.—Spring wheat, early sown on new land, promises a full average; on most old land it is very poor, and the crop will be below average.

Outagamie County, Wis.—Spring wheat will not be a half crop in the county, with the most favorable weather; insects and blight the cause. Winter wheat will be injured some with the rust; cold nights and warm days supposed to be the cause.

Brown County, Wis.—The excessive heat of May retarded the growth of all crops, and had the effect of bringing them to a premature development.

Waukesha County, Wis.—Wheat will be more than an average crop. Timely rains and sunshine have forced all products grown in this latitude like a hot-bed.

Dunn County, Wis.—The extremely hot, dry weather of the latter part of May and the 1st of June injured small grain very much, causing the wheat to dry up and turn yellow near the root.

Green County, Wis.—Spring wheat will fall below average, owing to rust and chinch-bug. "A few farmers were bold enough to sow winter wheat a year ago, and they will reap a bountiful harvest."

Richland County, Wis.—There is some complaint of rust and ravages of the fly in wheat.

Washington County, Wis.—Winter wheat affected by rust about the middle of June, and Canada club-wheat one week later. Spring wheat is damaged in some localities by worms. The season is too wet.

Grant County, Wis.—Spring wheat scalded by the hot, dry weather in June.

Ozaukee County, Wis.—Rain and cold weather have injured spring wheat considerably; whole fields look yellow, and will not be worth cutting.

Green Lake County, Wis.—Wheat rusted; the indications are that the crop will be reduced one-half.

Hancock County, Iowa.—Spring wheat in favorable condition; there has been some rust on the blades, but heads have not been injured.

Jefferson County, Iowa.—Dry weather and chinch-bug have injured spring wheat seriously. Many fields will not be cut.

Marshall County, Iowa.—Wheat slightly injured by rust.

Decatur County, Iowa.—Spring wheat is the great bread-crop of this county, and the chinch-bug has taken every acre.

Davis County, Iowa.—Spring wheat has been entirely destroyed by the chinch-bug.

Clarke County, Iowa.—"Spring wheat was very good until about three weeks ago, when the southern half of the county was attacked with rust. The chinch-bug then followed and totally destroyed many crops—nearly all. Some farmers have set fire to the wheat and burned off the straw, hoping to kill the bugs and thereby save the corn. There was very little fall wheat raised in the county, but what was raised was No. 1."

Page County, Iowa.—The chinch-bug has destroyed the spring wheat. The average will not be much over one bushel to the acre. The average for spring wheat for the last three years in this county is 25 or 26 bushels. That of fall wheat is 60 bushels.

Cherokee County, Iowa.—The straw of wheat will be short, but the grains well filled.

Bates County, Mo.—Wheat has been largely thrashed and averages over 20 bushels per acre.

Cass County, Mo.—Wheat about average yield per acre. Rainy weather threatens damage in the shock.

Clinton County, Mo.—Chintz-bugs numerous and destructive, destroying nearly all the spring wheat and barley.

Holt County, Mo.—Rye has become quite a crop in this county, and has obtained a good reputation. The season has been exceptional and capricious. Chinch-bugs entirely destroyed spring wheat.

Marion County, Mo.—Wheat, after promising the largest crop ever given in the county, turns out, after cleaning up, to be greatly diminished in quantity but of good quality. Straw very heavy.

Montgomery County, Mo.—Very dry till the 20th of June. Wheat, though plump and good, does not turn out well to the head, yet more is raised in the county than ever before.

Pike County, Mo.—Wheat harvest earlier than ever known, commencing in May and closing June 24. Straw heavy, but heads not well filled.

Platte County, Mo.—Wheat acreage smaller than last year, but the quality is superior.

Putnam County, Mo.—Three-fourths of the spring wheat so badly injured by chinch-bug as not to be worth cutting.

Vernon County, Mo.—Drought till June 24, when the ground was thoroughly wet Chinch badly damaged the wheat.

Wayne County, Mo.—Acreage in wheat 25 per cent. greater than last year, but frost and fly greatly reduced the yield.

Caldwell County, Mo.—Tappahannock wheat has done well but is not our best wheat—heads too small.

Clay County, Mo.—Wheat has done very well and will be mostly saved.

Clarke County, Mo.—Wheat prospects the best for five years.

Mercer County, Mo.—Winter wheat of excellent quality and harvested two weeks earlier than usual. Spring wheat almost a failure through drought and chinch-bugs.

Franklin County, Mo.—Wheat wintered well, and in spite of rust, drought, chinch, and joint worm, has produced a better crop than last year, and three weeks earlier.

Phelps County, Mo.—Wheat cut two weeks earlier than usual—Tappahanock by June 10.

Muscatine County, Iowa.—The wheat crop, *as usual* of late years, is one of loss to the producer. Very early in the season it was attacked by red rust, and since then the chinch-bug has appeared.

Harrison County, Iowa.—Wheat is generally short, and has the appearance of being light, but there is time yet for improvement.

Tama County, Iowa.—Weather highly favorable to growing crops. The blades of wheat are somewhat rusted; no injury yet to the berry.

Bremer County, Iowa.—Wheat thin in many cases and lower leaves rusty. Many farmers sow too thin. Some complaint of chinch-bug.

Mahaska County, Iowa.—Some rust on the wheat, and chinch-bugs in a few localities. Harvesting spring wheat has commenced, which is ten days earlier than usual.

Scott County, Iowa.—Until a short time ago barley looked above average condition, but heavy rains have colored the berry. The harvest will be large in bushels. Wheat is injured by rust, and will not yield over 75 to 80 per cent. of an average crop.

Wayne County, Iowa.—Since the 1st of June the chinch-bug and rust have taken three-fourths of the entire crop of spring wheat. They have not done much harm to winter wheat.

Washington County, Iowa.—It has been very dry until the middle of June, but abundant showers have lately fallen—too late, however, to help the wheat.

Calhoun County, Iowa.—Wheat injured by drought; stalks short and heads small.

Lee County, Iowa.—Spring wheat almost entirely destroyed by chinch-bug. Spring barley also damaged some by the bug.

Pottawattamie County, Iowa.—Prospect for spring wheat unfavorable; rust and chinch-bugs plenty; will not be over half a crop; weather favorable, neither too wet nor dry.

Audubon County, Iowa.—Great falling off in wheat; it will be far below average in consequence of drought in June.

Des Moines County, Iowa.—Fall wheat ripe middle of June, and is a heavy crop. Spring wheat is being cut, and will be about half a crop, owing to the destructiveness of the chinch-bug.

Marion County, Iowa.—Spring wheat injured by the drought and chinch-bug. Winter wheat is a good crop, above average, and is harvested. Rye is a fair, average crop, and was harvested in good order.

Plymouth County, Iowa.—Recent rains have helped the wheat. Barley is being harvested, and the yield is encouraging.

Palo Alto County, Iowa.—Best prospect for crops in this county for five years.

Story County, Iowa.—So far no bug, insect, or worm preys upon any kind of grain.

Allamakee County, Iowa.—Wheat leaves badly rusted; heads short; straw healthy; the crop may be nearly an average in quantity, but cannot be of first-rate quality.

Lee County, Iowa.—Harvesting winter grain commenced June 12, twenty days earlier than usual. Grain saved in good condition.

Sherburne County, Minnesota.—Spring grain nearly ruined by drought. Some fields plowed up; others will hardly pay for harvesting.

Meeker County, Minnesota.—Spring wheat severely injured by dry weather. In some localities the fields were almost destroyed by a hail-storm June 30.

Blue Earth County, Minnesota.—The Hessian fly is in some wheat fields, but has done no damage.

Kandiyohi County, Minn.—June was dry, and crops suffered for want of rain. June 31 a hail-storm cut down many fields of grain.

McLeod County, Minn.—This county has suffered very much from drought. Wheat generally short and thin. "Farmers who plow deep and keep their lands free from weeds have promise of good crops."

Watonwan County, Minn.—Wheat injured by drought, so that half a crop is barely possible. Many fields will not be harvested.

Winona County, Minn.—No rain from middle of May, except two light showers. Seed spring wheat did not come up well, and is much too thin.

Freeborn County, Minn.—Drought and rust have damaged wheat to a considerable extent, but not so much as to give cause for serious alarm. Recent rains have revived the crop, but it will still fall below the average.

Steele County, Minn.—The drought in the latter part of May and first half of June seriously injured the wheat crop, which will scarcely equal the average, notwithstanding the recent heavy rains.

Leavenworth County, Kans.—From some inexplicable cause wheat, which promised the best and largest yield for years, is undoubtedly a poor crop. Chinch-bug is found in wheat everywhere, even on new sod broken last year. Fine rains lately.

Woodson County, Kans.—Chinch-bugs very destructive to spring wheat. Some fields are a total failure. The uplands suffer the most this year. We have been comparatively exempt from the ravages of the chinch-bug for nearly six years. In this warm country they are worse, we think, than farther north. They seem to survive the winter and commence early in the spring, hence spring crops suffer most. The Tappahannock wheat, sent me from the Department, has never, until this year, had a fair trial, owing to accident, but this season the yield will reach, from one bushel sowing, 45 bushels, and others report even more favorably; one farmer says that from 38 pounds he raised 25½ bushels.

Chase County, Kans.—Winter wheat injured materially by late frosts. Spring wheat rusting and not filling well.

Wyandotte County, Kans.—Season very wet. It is thought some wheat will grow in the shock. "I never saw a more luxuriant growth of all crops than the fields and orchards now present. *Droughty* Kansas is a myth."

Osage County, Kans.—Spring wheat entirely injured by the chinch-bug. May wheat cut June 9.

Johnson County, Kans.—Winter wheat filled well. Late wheat injured by the fly but little. Barley badly damaged by chinch-bug.

Jefferson County, Kans.—Wheat looked well until near cutting-time, when the chinch-bug inflicted some damage.

Nemaha County, Kans.—Spring grain much damaged by chinch-bugs.

Riley County, Kans.—Winter wheat all harvested, and is a heavy crop. Spring wheat almost a total failure, from rust and chinch-bugs.

Franklin County, Kans.—Wheat harvest is over. The yield is better than was anticipated a month ago. All crops more advanced than usual. Fine growing weather.

Neosho County, Kans.—Crops never more promising. Wheat will not yield quite as well as was anticipated.

Clay County, Kans.—Winter wheat all harvested. Spring wheat is being cut; it is injured by weeds. Farmers will sow a largely increased breadth of winter wheat the coming fall.

Morris County, Kans.—Wheat injured by frost in the spring.

Sedgwick County, Kans.—Wheat on low lands injured by rust; on high ground said to be 20 per cent. better than last year. Harvest not yet commenced, owing to cool weather.

Coffey County, Kans.—Winter wheat now being threshed. Grain somewhat shrunk. The yield will not be as good as was expected before threshing. The early May wheat is the largest-sown variety, but, contrary to all previous years, is now in worse condition than most other kinds.

Jackson County, Kans.—Fall wheat is first-rate. Spring wheat not of much value.

Siskiyou County, Cal.—Prospect for more than average wheat crop till June; since, considerably injured by crickets.

San Joaquin County, Cal.—Season dry; wheat crop very small.

Lake County, Cal.—Wheat crop a little larger than last year; price last year $1 per 100 pounds; present price $2.

San Diego County, Cal.—Nothing raised within thirty miles of the coast, except some small crops in the mountains, by irrigation, as wheat, &c.

Alameda County, Cal.—Season dry; wheat and barley not more than half an average crop; quality good.

Mendocino County, Cal.—Wheat and barley in valleys one-half more than an average; on upland short.

San Bernardino County, Cal.—Wheat crop largest and of best quality for several years; grasshoppers very destructive.

Dakota County, Nebr.—Season very dry; wheat, rye, and barley more or less injured.

Dixon County, Nebr.—Long-continued drought; Arnautka wheat four to six inches taller than other varieties cultivated here.

Jefferson County, Nebr.—Season fine; wheat and other crops look well; two weeks earlier than usual; harvesting July 1.

Lancaster County, Nebr.—Serious drought the last four weeks; wheat has suffered much.

Nemaha County, Nebr.—Wheat badly injured by chinch-bugs.

Otoe County, Nebr.—Wheat and other grains considerably injured by drought; some pieces of wheat entirely destroyed by chinch-bug.

Osage County, Nebr.—Chinch-bugs appearing in large numbers; fears that they will damage spring wheat.

Washington County, Nebr.—Weather hot and dry; wheat crop in many places nearly ruined by drought; Arnautka wheat appears to be the best variety grown.

Doña Ana County, N. Mex.—Wheat, corn, beans, and red pepper principal crops; some fields of barley cultivated; look promising; all cultivation dependent upon irrigation.

Ada County, Idaho.—Wheat and barley seriously injured by drought and heat.

Gallatin County, Mont.—Hard frosts in June injured grain crops.

Clackamas County, Oreg.—Spring wheat threatened by drought.

Douglas County, Oreg.—Wheat and other grains above the average.

Marion County, Oreg.—The warm weather of June has brought crops forward very fast; wheat very fine.

Kane County, Utah.—Wheat considerably injured by grasshoppers.

Millard County, Utah.—Tappahannock wheat sent by the Department bids fair to be a success in this region.

Morgan County, Utah.—Severe frosts on the 3d and 4th of June will diminish the yield of wheat and other grains.

Rich County, Utah.—Wheat and other grains almost entirely destroyed by drought and grasshoppers.

Salt Lake County, Utah.—Spring wheat seriously affected by drought; mountain streams lower than for ten years past.

Weber County, Utah.—Prospect for wheat and all other crops never better than this year.

Clarke County, Wash.—Little wheat or other grain has been sown, owing to excessive rains.

COTTON.

The July returns do not materially change the cotton crop prospect reported in June. Severe rain storms have continued to obstruct cultivation and check growth in the States upon the Gulf coast. The States of Louisiana, Mississippi, Alabama, and Florida average lower in condition than at the date of the last report; the Georgia and Texas averages remain unchanged, and an improvement is indicated in the Carolinas, Tennessee, and Arkansas. The percentage in each State, as compared with the July statement of last year, is as follows:

	July, 1870.	July, 1871.		July, 1870.	July, 1871.
North Carolina	94 per cent.	99 per cent.	Mississippi	95 per cent.	80 per cent.
South Carolina	96 "	100 "	Louisiana	101 "	75 "
Georgia	101 "	82 "	Texas	97 "	93 "
Florida	98 "	88 "	Arkansas	101 "	90 "
Alabama	102 "	81 "	Tennessee	85 "	98 "

While no estimate can, at this early date, be authoritatively made, this information leads to the following conclusions: With a reduction of 14 per cent. in acreage, the continuance of the present relatively low condition, and a season as long as that of 1870, there should be gathered a crop of 3,200,000 bales, or about as large as that of 1869; with a season of average length, 2,900,000; with an early frost, and a very unfavorable season for picking, 2,700,000. The prevalence of insects, with

other unpropitious circumstances, would probably reduce the crop to 2,500,000 bales. This is presented as a fair statement of the range of probabilities, based upon the most extensive and reliable data, and uninfluenced by the clamor of the speculators of the cotton exchange.

Duplin County, N. C.—Cotton blossomed June 13, two weeks earlier than usual. Crop clean and in good condition—finest prospect for many years.

Greene County, N. C.—Cotton 15 per cent. better than last year, with 10 per cent. greater acreage.

Martin County, N. C.—Cotton has mostly done well. Promises a good crop and is two weeks earlier than usual.

Perquimans County, N. C.—Cotton backward. Wet weather gave the start to grass, but in the last two weeks of dry weather the crop has been cleared.

Union County, N. C.—Cotton early planted, on good land, and well worked is doing well. There is much poor cotton in the county, and grass has injured one-fifth of the crop.

Brooks County, Ga.—Crops on low lands abandoned.

Burton County, Ga.—Favorable weather will make the cotton three-fourths of last year's yield.

Chattahoochee County, Ga.—Much low-land cotton drowned out. Much depends on the season, but the crop cannot reach an average.

Dougherty County, Ga.—Cotton acreage decreased 10 per cent. Crop will aggregate about half of last year's.

Forsyth County, Ga.—Cotton has gained considerably during the month, but will be short.

Gwinnett County, Ga.—Cotton reduced in acreage and backward.

Milton County, Ga.—Finer weather has improved cotton, and it may be an average crop.

Muscogee County, Ga.—Continued rain has prevented any improvement in cotton. Condition 75 per cent.

Newton County, Ga.—Cotton has improved very much in thirty days, and where free from grass, is growing rapidly.

Pulaski County, Ga.—Cotton backward; first blooms June 16.

Quitman County, Ga.—Cotton exceedingly poor, and reduced in acreage one-third.

Talbot County, Ga.—Rain has injured cotton, but it has improved.

Upson County, Ga.—Cotton seriously injured.

Autauga County, Ala.—Cotton backward, very grassy.

Chambers County, Ala.—Cotton backward, but with good weather will make a fair crop.

Dallas County, Ala.—On loam and swamp lands cotton crop will be but one-half. On up or sandy lands cotton has improved.

Greene County, Ala.—Cotton small, grassy, and poor, but as the weather is fine it will probably improve.

Lauderdale County, Ala.—Grassy and deficient in stand.

Lowndes County, Ala.—Has been injured by hoes in removing the grass.

Macon County, Ala.—Cotton almost ruined, especially upon the bottoms, where the grass has taken full possession. Poorest cotton prospects for thirty years.

Marengo County, Ala.—Cotton stand poor; plant small; prospects improving with the weather.

Perry County, Ala.—Cotton in a very unpromising condition.

Sumter County, Ala.—Cotton late planted and badly in grass.

Gadsden County, Fla.—Rain has injured cotton.

Jackson County, Fla.—Cotton doing well; a little too much rain in places.

Madison County, Fla.—Acreage in cotton reduced one-fourth, and crop injured by wet; not over half a crop expected.

Nassau County, Fla.—Cotton on low lands seriously injured by rain.

Wilkinson County, Miss.—Full 10 per cent. of cotton planted was abandoned on account of rain; crop condition poor.

Smith County, Miss.—Cotton prospects exceedingly poor.

Sunflower County, Miss.—Cotton grassy; too much rain.

Madison County, Miss.—Cotton in bad condition; grassy.

Clark County, Miss.—Some cotton fields plowed up for corn and cow-peas..

Lauderdale County, Miss.—Acreage reduced 15 per cent., and 5 per cent. of the planting turned out.

Washington Parish, La.—Cotton has suffered from continued rains.

Union Parish, La.—Cotton may come to an average.

East Feliciana Parish, La.—Cotton has not been so unpromising since 1846.

Rapides Parish, La.—Cotton three weeks behindhand, and not over half a stand. 15 per cent. of the planting thrown out.

Austin County, Texas.—Dry weather has enabled farmers to clean their cotton fields, and the crop looks fair.

Jefferson County, Texas.—Cotton depends upon the rains of July.
Matagorda County, Texas.—Lowland cotton injured by rain; upland promises better.
Milan County, Texas.—Acreage in cotton increased 50 per cent.
Upshur County, Texas.—Acreage in cotton reduced.
Williamson County, Texas.—Drought threatens to shorten the cotton crop.
Sebastian County, Ark.—Cotton acreage one-third reduced.
Columbia County, Ark.—Cotton late and grassy; bad condition.
Little Rock County, Ark.—Cotton looks well on high lands, but drowned out on low lands; prospects greatly improved within a week.
Dyer County, Tenn.—Cotton reduced in acreage, but better in yield.
Giles County, Tenn.—Cotton culture being abandoned.
Lake County, Tenn.—Cotton culture ceasing from reduction in market price, and scarcity of reliable labor.

POTATOES.

The indications are that the crop of potatoes (*Solanum tuberosum*) will be a full average. It has had to contend with drought and late frosts in many of the States devoted to its culture, with grasshoppers in some of the Eastern States, and with the Colorado bug in nearly all of the Western States; but to offset these unfavorable conditions the season as a whole has been favorable; there is an increase in the aggregate acreage; rot is not reported; and the farmers, knowing the perils to which the crop was exposed, have shown unusual diligence in caring for it. Thus, the Colorado bug has been industriously fought wherever it has appeared, while the losses sustained from frosts by the early varieties are compensated by increased attention to those which are later in maturing. Late rains in June were propitious, and if the remainder of the season prove favorable there will be no scarcity of this staple crop. The Colorado bug is extending its ravages. It is moving eastward and southward, having been this season very destructive in Ohio, where it did but little damage last year, and made its appearance in great numbers in Kentucky. It has done much damage in all the Northwestern States. On the other hand, it seems to be leaving portions of Minnesota, Iowa, Illinois, Michigan, Wisconsin, and Indiana. What injury the young may do to the present crop after the old ones have disappeared can only be conjectured, but the presumption is that it will be very slight. The principal remedy yet relied upon for the destruction of the bug is Paris green, but there is greater activity this year in hand-picking than was shown last year. Insect enemies of the bug have also appeared. In the Southern States sweet potatoes promise a large yield, and wherever Irish potatoes have been planted they have almost invariably done well. Some extracts from correspondence are subjoined, to show, mainly, the influences that are at work to destroy the Colorado bug.

Lapeer County, Mich.—The potato crop looks fair. The old bugs have nearly disappeared; the young ones may yet do some damage.
Carroll County, Mich.—The bugs appeared in great numbers; but the "lady-bugs" have eaten their eggs, and Paris green has kept them at bay.
Scott County, Ill.—The potato bug is being destroyed by another small bug, which is about the same size, with a long, sharp bill.
St. Clair County, Ill.—Industrious people, who have gathered the bugs and destroyed them, will have fine crops of potatoes.
Columbia County, Wis.—Potatoes look well. By perseverance and Paris green the bugs have been kept at bay.
Douglas County, Wis.—Colorado bugs more numerous than last year. They were on the ground before the potatoes were up.
Ozaukee County, Wis.—Everybody has fought the potato bug, and the yield of potatoes will be good.
Richland County, Wis.—Colorado bugs do not seem to be doing any harm. There is a bug that is killing them.
Green Lake County, Wis.—Bugs leaving. They have left a few eggs and some young bugs, but the latter are doing no harm. The crop looks well.

Franklin County, Ind.—Potatoes doing better just now. Colorado bug gone; driven off with Paris green. When too strong it injured the tops. One ounce of green to one and a half pounds of flour, dusted on, will do.

Howard County, Ind.—The Colorado bug has almost disappeared.

Washington County, Ind.—The Colorado bug has almost eaten up the potatoes; what they left the striped bug is now eating.

Jennings County, Ind.—Colorado bugs plenty. The only remedy which promises relief from the potato bug is industry in its destruction.

Cass County, Ind.—Colorado bugs have almost entirely disappeared. Their eggs are destroyed by a small bug about one-third of an inch in length; red, with black spots.

Benton County, Minn.—Colorado bug disappearing; old ones have about all gone; the young ones don't seem to thrive as in previous years.

Sherburne County, Minn.—Colorado bug destroyed by Paris green. In some cases the remedy is about as bad as the bugs, owing to its too free use.

Licking County, Ohio.—The Colorado bugs made their appearance about the 1st of June, but have not done much damage, as they have been killed by the bushel.

Franklin County, Ohio.—The Colorado potato bug has been a great pest here this season, and has injured the crops 10 per cent. The farmers fought them unceasingly, or they would have stripped the fields. Paris green 1 pound, and flour 10 pounds, we found a perfect dead-shot for these pests of the potato-patch. I have seen no evil effects following its application.

Erie County, Ohio.—Colorado bug doing some damage; most people keeping them off by hand picking.

Crawford County, Ohio.—Colorado bug plenty; has been kept in check by constant picking and arseniate of copper.

Shelby County, Ky.—A gentleman got rid of his potato bugs by turning his Muscovey ducks into the field. In twenty-four hours there were no bugs left.

HAY AND PASTURES.

The season has been unfavorable for the grasses, owing mainly to the prevalence of drought. The drought of last season has also had an unfavorable effect on meadows and pastures. There will be a short hay crop. In Maine, where hay is a leading staple, the yield will not much exceed two-thirds of an average crop. In all of the New England and Middle States the condition of clover, timothy, and pastures is reported below average. In most of the Southern and Western States, and in Oregon, the pastures are above average, and the condition of clover and timothy, where grown, is equally good. In California clover and timothy have had a fine growth, while pastures are in relatively low condition. In sections where pastures and meadows have partially failed it is not yet too late to supplement them with corn as a soiling crop.

York County, Me.—I have about two acres Alsike clover from seed you sent me in 1868. Grown alone it falls to the ground; mixed with other grasses it is profitable.

Penobscot County, Me.—Grass badly winter killed.

Sagadahoc County, Me.—Hay must be much below the average, owing to the severe drought last season, the open winter, and dry spring.

Hillsboro County, N. H.—Clover of last year's standing all killed by last year's drought; timothy and other grasses are thin.

Norfolk County, Mass.—Pastures show the effect of last summer's drought, but are improving some because of frequent rains. Clover is not sown as a distinct crop, but in seeding new meadows it is customary to sow from 8 to 12 pounds of seed with herds' grass and red top.

Orleans County, Vt.—Farmers are now cutting their hay. Pastures are better than the hay crop. Weather too dry.

New London County, Conn.—Pastures and meadows have greatly improved since late rains.

Litchfield County, Conn.—The drought of last year killed the valuable grasses.

Columbia County, N. Y.—Timothy was affected by the drought of last year, and has not recovered.

Queens County, N. Y.—Hay is a principal crop. The rains and cool weather of June have materially helped the crop.

Warren County, N. Y.—Clover and timothy sowed a year ago were a failure in great part, owing to the dry weather.

Westchester County, N. Y.—Late rains and cool weather have helped grass very much.

Chester County, Pa.—Late rains have helped the pastures very much.

Butler County, Pa.—The frosty May and dry, hot June ruined our pasture fields and meadows, so that our cattle suffer to some extent for want of good pasture. The meadows will not yield 50 per cent. of an average crop; many cannot be cut.

Beaver County, Pa.—The drought ended with a nice shower June 17, and rains have since helped the pastures. The last of June was unfavorable for making clover hay.

Wayne County, Pa.—Owing to the drought that prevailed in this county last summer and fall, timothy meadows are found this spring almost entirely killed, and much damage was also done to clover and pasture fields. The months of May and June have been extremely dry.

Medina County, Ohio.—A severe drought in May and June injuriously affected grass crops, but recent rains have greatly benefited them.

Portage County, Ohio.—There is an uncommon growth of white clover this year; pastures are a full average.

Morrow County, Ohio.—Meadows and pastures have come forward rapidly since the late rains.

Alpena County, Mich.—Hungarian grass is raised in considerable quantities in this county, and with perfect success.

Winnebago County, Ill.—Clover and timothy have done remarkably well.

Clarke County, Mo.—Prospect for timothy the best in five years.

Cole County, Mo.—First crop of clover well secured; second fine, owing to copious rains.

Franklin County, Mo.—Pastures dried up. But few acres of either clover or timothy will be harvested.

Cedar County, Iowa.—Meadows light, but improving fast with late rains.

Marion County, Iowa.—Meadows on dry ground very light. Hundreds of acres barely worth cutting and saving.

Woodson County, Kans.—Clover, timothy, and blue grass flourish in Kansas.

Anderson County, Ky.—Meadows taken to some extent by white blossom and other weeds.

Franklin County, Ky.—Pasture good; clover and timothy injured by white top; not over half a crop.

Jefferson County, Ky.—Timothy not so good as clover—infested with white weed or daisy.

Lincoln County, Ky.—Pasture not so good as usual; clover and timothy injured by white top.

Shelby County, Ky.—Timothy and clover cut short by drought and white blossom.

Jefferson County, W. Va.—Hay crop short. The best crop of the season was fifteen tons on five acres.

Wilson County, Tenn.—Pastures splendid; clover average crop; timothy 50 per cent. below last year.

Giles County, Tenn.—Greater attention paid to grass crops.

Carroll County, Md.—Hay not one-half a crop; poorest yield in forty years.

Howard County, Md.—A farmer who cut fifty tons of hay last year will this year cut but five tons. This is a good sample of the county.

Greenville County, Va.—Clover grows luxuriantly, affording cow feed by the 1st of April; timothy, also, does well on the heavy soils.

Bertie County, N. C.—Experimental crops of clover sown in the spring.

Greenville County, S. C.—First crop of red clover hay harvested June 9; best was 2½ feet high.

Cobb County, Ga.—Clover and timothy raised on a small scale.

Gwinnett County, Ga.—Clover and timothy becoming more common.

Wilkes County, Ga.—Clover just introduced. First crop cut and very fine.

Colbert County, Ala.—Increased disposition to grow clover. Good experimental crop of red clover reported 3 or 4 feet high.

Manatee County, Fla.—Red clover might be made valuable as a fertilizer.

Hancock County, Miss.—No artificial pastures in the county.

La Fourche County, La.—No grasses planted for pasturage, and wild grasses do not exhibit much difference from year to year.

OATS.

In the New England States oats have had a rapid growth and are in excellent condition. In all these States, except Vermont, their condition is reported above average. In the Middle States the condition of the crop is slightly below average, Pennsylvania and Maryland being the lowest—the former being 13 and the latter 20 per cent. below. Drought in May and June has prevailed in all these States. Only one of the Western States, Minnesota, reports a condition greatly below

average, 24 per cent. Ohio is 3 per cent. above average; Wisconsin 4 per cent.; Kansas 8 per cent. The other Western States are slightly below average. In all the Western States the chinch-bug has been very destructive. Of the Southern States, Mississippi and Texas present the best showing, each being 10 per cent. above average. The other States of the South fall below average, owing principally to rust. The aggregate crop of the year will probably be a full average.

FRUIT.

Frosts in April and May, following the remarkably early opening of spring, greatly lessened the prospect of a good crop of apples. A short crop is indicated in all the States where they are most largely grown; probably the crop will be three-fourths of an average. Peaches have escaped with less damage, and in the States where special attention is given to their culture the yield will be unusually large. In Maryland it is estimated to be a full average; in New Jersey, 8 per cent. above; in Delaware, 40 per cent. above. In South Carolina, the yield is 25 per cent. above average; Georgia, 10; Florida, 10; Alabama, 79; Mississippi, 43; Louisiana, 47; Texas, 24; Arkansas, 8; Tennessee, 10; Michigan, 5; Iowa, 2. In all the remaining States the yield is below average. Pears promise well, and plums seem to have suffered less from the curculio than in late years. Cherries, strawberries, and other small fruits have been abundant. Grapes have seldom presented a more favorable prospect. They have met with no serious disaster in any of the grape-growing sections.

Table showing the condition of the crops, &c., on the 1st day of July, 1871.

STATES.	CORN.		WHEAT.		RYE.		OATS.	BARLEY.		PASTURE.	CLOVER.	TIMOTHY.	POTATOES, (Solanum tuberosum.)		POTATOES, (Batatus edulis, sweet.)	
	Acreage compared with last year.	Average condition July 1.	Average condition of winter wheat July 1.	Average condition of spring wheat July 1.	Average condition of winter rye July 1.	Average condition of spring rye July 1.	Average condition July 1.	Average condition of winter barley July 1.	Average condition of spring barley July 1.	Average condition July 1.	Average condition July 1.	Average condition July 1.	Acreage compared with last year.	Average condition July 1.	Acreage compared with last year.	Average condition July 1.
Maine	97	99	101	105	97	104	105	.....	102	89	63	69	106	104	.....	.....
New Hampshire	100	97	98	101	101	102	100	96	100	88	82	85	102	100	.....	.....
Vermont	98	89	93	98	100	96	95	.....	95	96	84	83	102	98	.....	.....
Massachusetts	97	100	98	98	99	90	105	100	102	89	85	85	110	107	.....	.....
Rhode Island	96	96	.....	.....	105	100	102	.....	100	96	95	90	110	106	.....	.....
Connecticut	99	105	97	105	101	103	107	.....	96	90	77	81	107	106	.....	.....
New York	100	96	108	97	103	94	97	99	94	92	85	83	105	100	90	90
New Jersey	102	98	112	.....	112	.....	96	.....	.....	93	77	78	99	100	100	99
Pennsylvania	101	97	110	93	106	86	87	95	85	85	80	79	105	100	103	96
Delaware	103	118	110	.....	100	100	90	.....	.....	90	93	86	106	93	100	105
Maryland	101	101	115	.....	108	.....	80	117	.....	77	70	70	95	93	103	90
Virginia	105	104	98	.....	99	.....	93	.....	.....	95	97	89	100	98	102	100
North Carolina	109	105	70	.....	92	99	81	.....	.....	100	100	102	104	103	101	96
South Carolina	112	110	66	.....	94	.....	72	.....	.....	108	110	.....	106	111	100	101
Georgia	110	95	63	.....	96	.....	76	94	.....	115	119	108	105	113	106	103
Florida	107	97	.....	.....	.....	.....	87	.....	.....	111	.....	.....	112	115	106	104
Alabama	111	88	69	.....	89	.....	89	93	.....	115	117	100	105	115	101	101
Mississippi	114	93	91	.....	93	100	110	.....	.....	107	121	.....	101	101	104	99
Louisiana	115	76	.....	.....	.....	.....	76	.....	.....	108	.....	.....	103	99	111	90
Texas	115	99	100	.....	93	88	110	76	102	99	103	.....	110	104	107	96
Arkansas	124	99	68	.....	.....	.....	91	.....	.....	108	109	100	106	98	114	99
Tennessee	107	106	59	.....	51	.....	99	98	.....	102	103	98	103	92	102	100
West Virginia	105	101	103	.....	98	.....	86	98	.....	89	.....	82	101	96	106	100
Kentucky	103	104	65	.....	87	90	99	100	101	95	92	82	100	92	98	98
Missouri	110	115	103	64	106	100	91	107	86	107	105	100	100	98	102	102
Illinois	106	110	107	70	105	107	90	103	91	100	100	94	94	83	102	99
Indiana	104	102	93	98	96	91	90	105	84	88	89	82	89	85	99	94
Ohio	103	106	104	93	103	100	103	105	102	106	97	94	103	102	101	97
Michigan	103	99	108	96	105	102	86	92	85	88	88	82	89	84	.....	.....
Wisconsin	107	110	106	80	108	87	104	.....	102	114	107	109	107	98	.....	.....
Minnesota	111	105	98	70	97	90	76	.....	81	96	88	93	102	102	.....	.....
Iowa	115	112	108	82	104	99	98	107	101	100	98	94	106	103	103	102
Kansas	150	117	107	85	107	85	108	110	100	112	110	109	128	108	125	102
Nebraska	130	107	110	89	96	95	96	110	102	93	.....	.....	108	98	.....	.....
California	100	90	83	95	75	.....	93	85	100	81	100	108	107	96	105	80
Oregon	106	93	101	110	96	105	108	101	101	113	113	106	102	100	.....	.....

Table showing the condition of the crops, &c.—Continued.

STATES.	BEANS.		SORGHUM.		SUGAR CANE, (not sorghum.)		TOBACCO.		COTTON.	WOOL.	APPLES.	PEACHES.	GRAPES.	STRAWBERRIES.	CRANBERRIES.
	Acreage compared with last year.	Average condition July 1.	Acreage compared with last year.	Average condition July 1.	Acreage compared with last year.	Average condition July 1.	Acreage compared with last year.	Average condition July 1.	Average condition July 1.	Amount of wool, *in hundredths*, compared with last year.	Average condition July 1.	Average condition July 1.	Average condition July 1.	Product compared with last year.	Average condition July 1.
Maine	101	100	.....	.....	.....	.....	.....	.....	.....	84	51	.....	99	91	100
New Hampshire	100	98	.....	.....	.....	.....	.....	.....	.....	93	71	95	100	100	97
Vermont	96	94	.....	.....	.....	.....	.....	.....	.....	98	82	95	103	105	.....
Massachusetts	96	95	.....	.....	.....	.....	120	101	.....	84	69	80	109	89	105
Rhode Island	96	100	.....	.....	.....	.....	.....	.....	.....	96	61	88	111	97	.....
Connecticut	100	101	.....	.....	.....	.....	116	108	.....	98	60	58	104	105	103
New York	98	97	.....	.....	.....	.....	142	96	.....	90	66	52	93	94	.....
New Jersey	101	97	.....	.....	.....	.....	.....	.....	.....	104	54	108	105	66	.....
Pennsylvania	97	95	87	99	.....	.....	127	88	.....	95	67	82	100	83	.....
Delaware	.....	100	80	100	.....	.....	.....	.....	.....	55	76	140	113	143	105
Maryland	98	99	92	100	.....	.....	91	83	.....	95	76	100	103	89	.....
Virginia	99	96	86	95	.....	.....	95	93	95	93	68	79	99	92	.....
North Carolina	102	97	82	94	.....	.....	93	97	99	99	57	92	92	102	.....
South Carolina	101	103	94	103	105	100	100	102	100	104	77	125	97	116	.....
Georgia	94	102	85	88	107	109	102	102	82	98	80	110	84	103	.....
Florida	.....	.....	.....	.....	109	102	100	100	88	101	.....	110	100	102	.....
Alabama	104	102	84	88	110	106	106	108	81	95	161	179	95	110	.....
Mississippi	107	100	95	101	98	99	100	98	80	92	103	143	97	79	.....
Louisiana	105	100	.....	.....	110	100	.....	.....	75	93	101	147	105	85	.....
Texas	106	96	101	102	115	103	103	104	93	93	124	124	119	121	.....
Arkansas	98	93	100	90	.....	.....	106	92	90	105	99	108	63	104	.....
Tennessee	103	101	88	96	.....	.....	93	98	98	100	61	110	92	96	.....
West Virginia	100	96	95	97	.....	.....	96	94	.....	100	72	84	96	89	.....
Kentucky	98	97	87	94	.....	.....	87	95	100	95	55	60	65	77	.....
Missouri	99	101	97	102	75	100	102	102	95	101	95	92	31	124	.....
Illinois	102	100	94	102	.....	.....	133	94	.....	92	73	73	104	105	.....
Indiana	101	97	91	117	.....	.....	93	96	.....	93	87	85	88	81	.....
Ohio	100	103	91	100	.....	.....	99	97	.....	94	72	73	93	82	.....
Michigan	110	96	90	100	.....	.....	101	100	.....	93	95	105	100	92	.....
Wisconsin	140	140	90	115	.....	.....	130	102	.....	101	103	.....	104	106	.....
Minnesota	101	97	102	105	.....	.....	.....	.....	.....	112	111	.....	98	95	.....
Iowa	100	102	96	106	.....	.....	100	103	.....	91	102	102	118	112	.....
Kansas	120	103	110	102	.....	.....	.....	.....	.....	111	97	96	100	110	.....
Nebraska	106	103	107	105	.....	.....	.....	.....	.....	101	106	.....	102	123	.....
California	81	90	.....	.....	.....	.....	.....	.....	.....	117	96	89	111	110	.....
Oregon	101	89	.....	.....	.....	.....	.....	.....	.....	99	101	80	101	86	102

THE DEPARTMENT OF AGRICULTURE.

RESIGNATION OF COMMISSIONER CAPRON AND APPOINTMENT OF HIS SUCCESSOR, HON. FREDERICK WATTS.

Since the last Monthly Report was issued, an important change has occurred in the administration of this Department. Hon. Horace Capron has tendered to the President his resignation of the office of Commissioner of Agriculture, to which he was appointed November 29, 1867, and the resignation has been accepted, to take effect on the 1st day of August next. The following correspondence on the subject has passed between the Commissioner and the President:

DEPARTMENT OF AGRICULTURE, *Washington, June 27*, 1871.

DEAR SIR: In fulfillment of an engagement with representatives of a foreign government, the nature and circumstances of which I communicated to you early in May last, it becomes necessary to tender my resignation as Commissioner of Agriculture, to take effect on the 1st day of August next. In doing so, I desire to express my high appreciation of your confidence and kindness, officially and personally expressed, and I assure you of their indelible impression upon my mind and heart.

I have the satisfaction of leaving the Department in efficient working order; its buildings and improvements erected, without increasing the moderate annual appropriations; its finances unembarrassed; its current pecuniary obligations without, as heretofore, the necessity of deficiency appropriations, and an enlarged fund for the next fiscal year. Its usefulness has been satisfactorily tested, not only in the exercise of its well-known public functions, but in answer to thousands of personal inquiries, involving every aspect of scientific agriculture, and tending to advance the public weal with private welfare; and its importance asserted in decided terms by industrial authorities, official and personal, of all quarters of the globe. I scarcely need ask from you a continuance of that intelligent appreciation and fostering care accorded hitherto, and essential to the full development and highest utility of this Department of the National Government.

I have the honor to be, your obedient servant,

HORACE CAPRON,
Commissioner of Agriculture.

The PRESIDENT OF THE UNITED STATES.

EXECUTIVE MANSION, *Washington, June 28*, 1871.

DEAR SIR: Your letter of the 27th instant, tendering your resignation as Commissioner of Agriculture, is just received. Appreciating as I do the value to the country at large of the Department over which you have so ably presided for years, I should regret receiving or accepting your resignation were it not for the importance attached to the new position which you are called on to fill, and which, no doubt, will be filled with credit and to the inestimable value of the nation which has secured your services.

In the new place of which you have accepted the responsibilities I predict results creditable to yourself and to the nation which has so honored you, as well as the rapid advance of commerce between that nation and all others. Such a result cannot prove otherwise than beneficial to the world's interests, leaving out of the account that of ourselves as a single nation.

Your resignation is accepted from the date proposed by yourself, with anticipations that you will realize all that is expected from your new duties.

With sincere wishes for your future success, I subscribe myself, very sincerely, your obedient servant,

U. S. GRANT.

Hon. HORACE CAPRON, *Commissioner of Agriculture.*

The engagement to which General Capron refers in his letter above given was made with commissioners of the Japanese government, who were deputed to visit this country and make arrangements for the introduction into Japan of American methods of agriculture and a knowledge of other industrial arts of our advanced civilization, including our railroad and mining systems. General Capron has been selected to perform this important work. He is empowered to introduce into Japan models of implements and machinery connected with our indus-

trial achievements, together with furniture, utensils, and all the other mechanical accompaniments of our business, social, and domestic life. He will be assisted by a corps of scientific gentlemen, including two of the officials of the Department of Agriculture—Dr. Thomas Antisell, chemist, and Dr. Stuart Eldridge, librarian, both of whom have resigned the offices they respectively held. After the 1st of August the address of the commission will be Yokohama, Japan.

General Capron's mission cannot fail to result in many and enduring benefits to the people of Japan, who, through its instrumentality, will learn the arts that have made us a mighty nation, while the people of our own country will be benefited in return by the demand for the products of our mines, manufactories, and farms, to which the industrial development of Japan will surely lead. It will strengthen the friendly relations which now exist between the two nations, and it will aid greatly in extending the influence of our civilization to the neighboring empire of China.

General Capron bears with him to Japan letters of the most complimentary character from the President, the General of the Army, the Secretary of War, the Secretary of the Navy, the Acting Secretary of State, and Her Britannic Majesty's minister at Washington. The employés of the Department of Agriculture have also formally united in the following testimonial, presented at a meeting called for the purpose on the afternoon of July 13:

Whereas, the Hon. Horace Capron, Commissioner of Agriculture, having resigned, for the purpose of accepting a high position under the Japanese government: Therefore,

Resolved, That we congratulate him upon the distinguished compliment he has received in being selected by the government of Japan to guide and aid in the development of the agricultural resources of that country.

Resolved, That, in the retirement of Hon. Horace Capron from the Department of Agriculture, the people of the United States have lost an honest, faithful, and able public servant, and the agricultural interest of the country one of its most intelligent, zealous, and progressive advocates.

Resolved, That, as employés of the Department of Agriculture, we hereby testify our sincere regret at the severance of those genial relations, official and personal, which we have hitherto sustained to Commissioner Capron; that we will ever cherish a warm remembrance of his uniform courtesy and kindness, and that we tender to him our best wishes for his entire success in the important mission to which he has been called.

Resolved, That a copy of these resolutions, properly engrossed, be presented to the retiring Commissioner.

Hon. Frederick Watts, of Carlisle, Pennsylvania, has been appointed successor to General Capron as Commissioner of Agriculture, to date from the 1st of August. Judge Watts is a native of Carlisle, and was educated at Dickinson College, where he was graduated at the age of nineteen. Immediately after his graduation he went to Erie County, Pennsylvania, and there lived three years with an uncle, working daily on his farm. It was while residing with this uncle that the taste for farm life, which has characterized his whole career, was fully formed, and a practical knowledge of its essential requirements thoroughly learned. Returning to Carlisle, he studied law with Andrew Carothers, and was admitted to the bar. He practiced his profession until 1848, when he was commissioned by Governor William F. Johnston as president judge of the ninth judicial district of Pennsylvania, composed of the counties of Cumberland, Perry, and Juniata. This office he held for three years, when, it having been made elective, and the district being under the control of the political party with which he was not in sympathy, he retired from the bench and returned to the bar. He did not, however, actively engage in his profession, a large portion of his time being devoted to the personal superintendence of a farm near Car-

lisle. For many years he had been a farmer as well as a lawyer, and had become known as one who believed in the application of science to the tilling of the soil. In 1858 he abandoned entirely the practice of law, and since then has been exclusively a farmer. During the last few years he has resided on his farm, giving to all the details of its management his personal attention. He is also the owner of another farm, which he manages through a tenant.

Judge Watts's prominence as a farmer led to his election, in 1856, as the first president of the Pennsylvania Agricultural Society, which office he held until 1862, when he declined a reëlection. He was elected the first president of the board of trustees of the Agricultural College of Pennsylvania, a position which he still holds. He has never been prominent as a politician, although entertaining at all times positive views of public policy, and has never been a candidate for either congressional or legislative honors. He was not an applicant for the distinguished position to which he has just been appointed, and its duties and responsibilities have been accepted with reluctance.

Judge Watts is a practical and scientific farmer. He has devoted his life to the practice of progressive methods of diversified agriculture, and has always manifested a deep interest and genuine enthusiasm in the advancement of the farmer's calling. In his new office he may be expected to give to all the agricultural interests of the country the same intelligent and industrious attention he has bestowed upon the varied operations of his own farm and the agriculture of Pennsylvania.

SKETCH OF THE DEPARTMENT OF AGRICULTURE.

The census establishes the fact that one-half the population of the United States is either directly engaged in agricultural pursuits or wholly dependent upon them for support, while no census is required to prove that the whole country is mainly indebted for its prosperity to the quiet labors of the independent farmer. Our commerce and manufactures are of vast importance, but they are of secondary interest when compared with our stake in agriculture. Unlike some of the nations of Europe that do not produce food enough to supply the necessary wants of their people, poorly as some of them are always fed, the United States annually produces more food than her people can consume or waste. We are large exporters of meats and breadstuffs and of other agricultural productions. We are distinctively and preëminently a nation of farmers, and such we shall undoubtedly remain. The temperate and stimulating climate of our country, the variety of soil and range of latitude and elevation, the rural tastes of our people, and the vast domain yet open to homestead occupancy, combine to assure a continuance of the interest heretofore manifested in agricultural pursuits. It is somewhat strange, therefore, in view of all these facts, that so much attention has been bestowed from the foundation of the Government upon the encouragement of commerce and manufactures and so little upon the encouragement and improvement of agriculture; stranger still, that any professedly patriotic citizen should ever have given utterance to the sentiment that "agriculture can take care of itself." Not only has the attention of politicians and statesmen been diverted from this chief of all the industries, but farmers themselves have been slow to press their claims to more favorable recognition. It is true that Washington, and the presidents who immediately succeeded him, urged the importance and propriety of placing agriculture under the direct fostering care of the Government, and that the subject was considered

by committees of both houses of Congress during the early days of the Republic, but constitutional and other objections, and the lack of general interest in any suggestion for the improvement of agricultural methods, constantly postponed favorable legislative action.

To Hon. Henry L. Ellsworth, of Connecticut, son of Hon. Oliver Ellsworth, third Chief Justice of the United States, is the country more indebted than to any other person for the recognition by Congress of the claims of agriculture. Mr. Ellsworth's services date from 1836, in which year he was appointed the first Commissioner of Patents. The Patent Office had been just then reorganized. Owing to its subsequent intimate association with the interests of agriculture, the origin of this office requires a brief notice before we refer to Mr. Ellsworth's administration of its duties.

The first article of the Constitution provides for promoting the progress of science and the useful arts by securing to authors and inventors the exclusive right to their respective writings and discoveries. This clause is the foundation of our laws regulating copyrights and patents. Up to 1793 the granting of letters-patent was confided by act of Congress to the Secretary of War, the Secretary of State, and the Attorney General, the records of patents to be kept in the office of the Secretary of State, and all models and drawings to be deposited there. On the 21st of February of that year the duty of acting upon applications for patents was assigned exclusively to the Secretary of State. The examination of these applications was performed by a single clerk in the office of the Secretary, who, in 1821, received the title of Superintendent of the Patent Office. In 1830 this office was further recognized by law, and made the subject of a special appropriation. On the 4th of July, 1836, it was made a separate bureau of the Government, and the office of Commissioner of Patents was created. In December of the same year, Blodgett's Hotel, a three-story brick building, used for Government offices, which stood where the Post Office building now stands, and fronted on E street, was burned to the ground. In one or two of the upper rooms was located the Patent Office, and its contents were entirely consumed. Afterwards until 1840 the business of the bureau was transacted in rooms appropriated to its use in the City Hall. In 1840 the Patent Office was removed to the building erected expressly for its accommodation and now occupied by it.

Mr. Ellsworth was Commissioner of Patents from 1836 to 1845, and one of the first subjects which engaged his attention after assuming the duties of the office was the impulse which had been given at that day to improvements in the implements of agriculture, and the "aid which agriculture might derive from the establishment of a regular system for the selection and distribution of grain and seeds of the choicest varieties for agricultural purposes." During the administration of John Quincy Adams, the consuls of the United States had been instructed to forward to the State Department rare plants and seeds for distribution, and a botanical garden was established at Washington. Little was done in the collection and distribution of seeds thus authorized, but to the association of this enterprise with the Patent Office in the State Department Mr. Ellsworth was doubtless indebted for the hint of a more comprehensive system of seed distribution. In 1836 and 1837, the first two years of his incumbency, the Commissioner, without legal authorization, received and distributed many seeds and plants which had been gratuitously transmitted to him. In his first annual report, dated January 1, 1838, he called the attention of Congress to the subject, and strongly recommended that provision be made for the establishment at the

national capital of a depository of new and valuable varieties of seeds and plants, for distribution to every part of the United States. He further recommended that this depository be made a part of the Patent Office. No immediate action was taken by Congress upon the recommendations, but this neglect did not discourage the Commissioner from continuing his self-imposed task of distributing, under the frank of friendly members of Congress, improved varieties of wheat, corn, &c., the beneficial effects of which distribution were fully shown in testimonials from all parts of the country.

On the 21st of January, 1839, Hon. Isaac Fletcher, of Vermont, chairman of the Committee on Patents of the House of Representatives, addressed a letter to Commissioner Ellsworth, requesting the communication of information relative to the collection and distribution of seeds and plants; also relative to the practicability of obtaining agricultural statistics. To this letter of inquiry the Commissioner responded on the following day, reciting the action already taken by him to further the cause of agriculture, and assigning many reasons why his previous recommendations should be adopted. In this communication the Commissioner suggested that "arrangements could be made for the exhibition of different kinds of grain, exotic and indigenous, in the new Patent Office." In the closing hours of the Twenty-fifth Congress, (act of 3d March, 1839,) the Commissioner was gratified by the passage of an appropriation of $1,000, to be taken from the Patent Office fund, for the purpose of collecting and distributing seeds, prosecuting agricultural investigations, and procuring agricultural statistics. Thus originated the agricultural division of the Patent Office.

In his annual report of the following year, dated January 1, 1840, Commissioner Ellsworth stated that the diplomatic corps of the United States had been solicited to aid in procuring valuable seeds, and that the officers of the Navy had been requested to convey to the Patent Office such seeds as might be offered. As the sixth census was then about to be taken, agricultural statistics were deferred until its completion. In the next report, (January 1, 1841,) it was stated that 30,000 packages of seeds had been distributed during the preceding year, and that the agricultural statistics, based upon the returns of the census, were being compiled. "The importance of an annual report of the state of the crops in different sections, as a preventive against monopoly, and a good criterion to calculate the state of exchange," was commended to the consideration of Congress, and from this suggestion were evolved in time the annual agricultural reports.

In the report of 1842 were given tabular estimates of the products of agriculture in the United States in 1841. These estimates filled two pages, and were based upon the census returns of 1840, supplemented by such additional information as could be derived from agricultural reports, newspapers, and official correspondence with leading citizens in all parts of the country. The correspondence was mainly conducted by means of printed circulars, containing inquiries by the Commissioner, to which replies were returned on the same sheet. The same general plan of obtaining information is observed by the Department of Agriculture to-day. Fifteen pages of comment followed the tabular statement, embracing a survey of the agricultural condition and prospects of the country. Special subjects of comment were the manufacture of sugar from Indian corn, and lard oil as a substitute for whale oil as an illuminator. In this year Congress appropriated another $1,000 from the Patent Office fund for agricultural purposes. There was no appropriation in 1840 and 1841. From 1842 to 1846 the annual appro-

priation from the fund was continued, but in the latter year it was again omitted. In 1847 it was revived, and afterwards annually renewed up to 1854, when the policy of appropriating money from the fund was abandoned; the whole amount ($39,000) drawn from it was reimbursed in 1855. After 1853 appropriations for agriculture were made every year directly from the Treasury. In no one year, up to 1854, did the annual appropriation exceed $5,500, and it was generally below that sum.

In his report of 1843 the Commissioner recommended "the constitution of an agricultural bureau, or at least an agricultural clerkship, at a moderate expense." He further recommended "a sufficient appropriation to allow a personal examination of the various parts of the country, by some one well qualified for such duty." Accompanying the report was an elaborate essay by the Commissioner, sixty pages long, on the condition and prospects of American agriculture; also, a tabular estimate of the crops of 1842, occupying two pages, the data for which were obtained from the sources previously relied upon. The preparation of the table was stated to have been "no easy task." Several communications, from farmers and others, on practical questions relating to agriculture, were printed in an appendix, and some of them were illustrated by cuts. From them may be dated the practice of publishing details of individual experience and elaborate essays in the annual agricultural reports.

The report of 1844 was still more voluminous than its predecessor. The tabular estimates, letters from correspondents, and remarks by the Commissioner were continued. The statement was made that the labor of the Commissioner in compiling agricultural information was chiefly performed out of office hours. The remarks on the condition of the crops and the growth of agriculture challenge admiration by their comprehensiveness, (120 pages,) their minuteness of detail, and the thorough acquaintance manifested by the writer with the agricultural resources of the country. A more extended system of investigation was recommended. The distribution of foreign seeds had been continued during the preceding year, and 12,000 packages would be distributed during the year then current.

The report of 1845 showed increased industry and enthusiasm by the Commissioner. It was more voluminous than any of its predecessors. The potato-rot, which began in 1843, the ravages of the Hessian fly and other insects, and the various diseases to which wheat and other grains are subject, were referred to at length in the general review and in the papers contained in the appendix, and remedies were suggested. Some of the most valuable papers in the appendix were reproduced from the agricultural and news journals of the day.

On the 30th of April, 1845, Mr. Ellsworth resigned the office of Commissioner of Patents. We have given in some detail the facts in his official career, because he was really the founder of that branch of the Government now embraced in the Department of Agriculture, and as such entitled to honorable mention in these pages, and because the first successful steps in the work of securing Government recognition of agriculture deserve to be recorded. The patience, enthusiasm, and industry of Mr. Ellsworth in this work entitle his name to the grateful remembrance of American farmers.

Hon. Edmund Burke, of New Hampshire, succeeded Mr. Ellsworth as Commissioner of Patents. During the four years (1845–1849) of his administration of the office, the efforts of his predecessor for the advancement of agriculture were most ably seconded. The report of the Com-

missioner in 1846 was the largest that had yet appeared, filling 1,184 pages, less than 100 of which related to patents, the remainder being devoted to agricultural topics. The annual reports of the Department of Agriculture have seldom exceeded 700 pages, and have not averaged above 650 pages. Mr. Burke introduced into the report many new features, prominent among which were tables of British and United States imports and exports, and English cotton quotations. The papers in the appendix embraced a wide range of subjects. The potato disease was exhaustively discussed. The Commissioner stated that the number of packages of seeds distributed in 1846 would exceed 50,000. Additional facilities for obtaining information and purchasing seeds were declared to be necessary to the successful prosecution of the agricultural work of the office, a declaration which did not prevent Congress from withholding the appropriation of a single dollar for agricultural purposes for the ensuing year. When the Patent Office report of 1847 appeared, agricultural statistics, essays, correspondence, and newspaper articles were entirely omitted.

Congress saw and acknowledged its error, and the appropriation ($3,000) from the Patent Office fund was restored. In 1848 a very valuable report appeared, which was especially rich in statistics relating to the products of labor and capital in the United States, the movements of these and foreign products on interior lines of transportation; the consumption and surplus for exportation of food products, the demands of foreign countries for these products, and tables of population, property, prices, &c. The volume was more profusely and expensively illustrated than any that had preceded it. In the report of the following year (1849) an increased amount of space was occupied by miscellaneous statistics, chiefly industrial. The quantity of seeds distributed in 1848 had increased to 75,000 packages, and it was announced that nearly as many had been obtained for distribution in 1849. In this report mention is made of foreign seeds having been submitted to the test of experiment by an intelligent gardener.

On the 30th of April, 1849, Mr. Burke retired from the Patent Office, and was succeeded by Hon. Thomas Ewbank, of New York. During his administration of the office some changes were made in the management of the agricultural division. By direction of the Secretary of the Interior, the task of collating and arranging the materials for the agricultural portion of the annual report was committed to a "practical and scientific agriculturist." Another change consisted in the publication of the agricultural portion of the report in a separate volume. The first of these volumes appeared in 1850, edited, in accordance with the Secretary's views, by a scientific gentleman, Daniel Lee, M. D. It contained many elaborate scientific and practical papers, by Mr. Lee and others, and numerous commercial and miscellaneous statistics, but no statistics of the agricultural productions of the preceding year. This departure from the uniform practice of Commissioners Ellsworth and Burke, Mr. Lee justified by declaring that all previously published statistics were unreliable, because of the insufficiency of the data from which they were calculated. He declined to "waste time and paper in printing crude guesses." The opinion was expressed that Congress or the State legislatures should devise and execute a plan for procuring accurate statistics, but Mr. Lee did not suggest a way by which the same result could be reached through the instrumentality of his own office. In the report of 1851 occurs the same important omission as in that of 1850; but in that of 1852 appeared the agricultural statistics of the seventh census, unaccompanied, however, by any analysis, comparison,

or other comment. In November, 1852, Mr. Ewbank retired, and was succeeded by Hon. Silas H. Hodges, of Vermont, Mr. Lee remaining. In the report of 1853 no attempt was made to add to the value of the census figures, and the reader was left in ignorance whether the agricultural productions of 1852 were greater or less than those of the census year. In the report of 1850 Mr. Lee introduced meteorological statistics, and the space accorded to this specialty annually increased during his editorship of the reports.

On the 25th of March, 1853, Mr. Hodges was succeeded as Commissioner by Hon. Charles Mason, of Iowa, and soon afterwards Mr. Lee, as editor of the reports, was succeeded by Mr. D. J. Browne. In Mr. Mason's four reports, appearing in the years 1854, '55, '56, '57, agricultural statistics have no place, the editor entertaining the same views as his predecessor concerning the value of statistics not collected by the State or through an annual visit from the census marshal. In these views he was sustained by the Commissioner. Mr. Browne, however, greatly systematized the arrangement of the matter of the reports, and during the four years above named greatly changed its quality. Fewer letters from correspondents were given, and more essays. A series of valuable papers on climatology and meteorology, by Lorin Blodget, esq., Professor Joseph Henry, and others, extended through the whole four reports. From Mr. Mason's first report (1854) may be dated the declension of the crop correspondent and the ascendency of the essayist in the annual reports.

The agricultural and industrial cabinet, meditated by Mr. Ellsworth, seems to have received some attention prior to the accession of Mr. Mason, who refers in his first report to the variety and value of the collection of seeds, fibers, insects, &c., contained in it; but this collection must have been very insignificant when compared with the present museum of the Department of Agriculture.

The annual appropriation, which, up to and including 1853, had never exceeded $5,500, was, in 1854, increased to $35,000, and it has never since been less than that sum. The annual distribution of seeds, cuttings, and reports had so stimulated agricultural enterprise and the development of the resources of the nation, that Congress was led to adopt a more liberal policy of disbursement as a means of securing yet more bountiful results. In the first year of his administration, Commissioner Mason was thus enabled to extend his purchases of seeds and plants far beyond those of any of his predecessors.

In the list of plants ordered in 1854 to be imported, and which were imported in that and the following year, were two plants of Chinese origin—the Chinese yam and the Chinese sugar-cane. In 1856 a portion of the Government grounds in Washington, lying between Four-and-a-half and Sixth streets and Missouri avenue and the canal, embracing five acres, was set apart for the propagation of the seed of the sugar-cane, otherwise known as sorghum. Large quantities of the seed produced on this ground were distributed in 1856 and 1857, after which, the country being well supplied by individual enterprise, general distribution by the Patent Office ceased. Thus originated the propagating garden now attached to the Department of Agriculture, and which, it is proper to add, has not now and never has had any connection with the botanical garden established during Mr. Adams's administration, but with which it has often been confounded.

The subject of entomology as related to agriculture had received some attention from the Commissioners of Patents prior to 1854. In that year Commissioner Mason employed Mr. Townend Glover, present entom-

ologist of the Department of Agriculture, to investigate and report upon the habits of insects injurious and beneficial to vegetation, especially those infesting the cotton-plant. Mr. Glover's first report was published in the volume which appeared in 1855; another appeared in 1856, and another in 1859. From his engagement, which was temporarily interrupted in 1859, may be dated the origin of the entomological branch of the Department. In 1855 an arrangement was made with the Smithsonian Institution, which is now in force, for procuring and publishing meteorological statistics. In the same year a chemist and botanist were engaged. Their engagements were not permanent; nevertheless, the chemical and botanical branches of the Department of Agriculture may properly be said to have had their origin in this year. The report which appeared in 1857 was more profusely illustrated than any of its predecessors.

Mr. Mason retired in August, 1857, and in the following month was succeeded by Hon. Joseph Holt, of Kentucky, who served until March 14, 1859. During his administration two annual reports were issued—in 1858 and 1859—each edited by Mr. Browne, in accordance with his previous views. In the report of Commissioner Mason which appeared in 1856 much space had been devoted to the history and peculiarities of the Chinese tea-plant, and the belief had been expressed that it could be successfully cultivated in most if not all of the Southern States of this country. Commissioner Holt determined to practically test the adaptability of the plant to our soil and climate, and in his report of May 11, 1858, he announced that an agent had been sent to China to procure seeds of this and other plants. In the same year the plot of ground previously appropriated to the culture of the Chinese sugar-cane was thoroughly improved for the purpose of planting in it the seeds of the tea-plant when they should arrive, together with cuttings of native and foreign grape-vines, which it had been determined to propagate, with the view of stimulating and improving grape-culture. The tea seeds arrived in April, 1859, and subsequent efforts to germinate them and grow the young plants to maturity were crowned with the most gratifying success.

In 1858 Commissioner Holt extended invitations to a number of intelligent farmers, residing in different sections of the country, to meet at Washington for the purpose of considering the general interests of agriculture, and especially to inquire how these might be promoted through the instrumentality of the Patent Office. These gentlemen met at the Patent Office on the 3d of January, 1859, and continued in session eight days. The general plan of operations which had been pursued by the agricultural division of the office was unanimously approved.

Hon. William D. Bishop, of Connecticut, succeeded Mr. Holt May 23, 1859, and he in turn was succeeded February 16, 1860, by Hon. Philip F. Thomas, of Maryland. With the retirement of Mr. Holt, Mr. Browne ceased to edit the reports. The leading features of Mr. Bishop's report, appearing in 1860, corresponded substantially with those of the reports for the preceding ten years. Agricultural statistics received no attention; the essay was more prominent than ever. It was announced that there had been propagated and were ready for distribution 30,000 well-rooted tea-plants, 12,000 foreign and domestic grape-vines, and many other valuable exotic plants. Mr. Thomas resigned December 13, 1860, and issued no report. The report of the following year was edited by Hon. Thomas G. Clemson, superintendent of the agricultural division. It was an able document, but Mr. Ellsworth's favorite idea of giving

annually a résumé of the condition of the crops found no expression in its pages. An enlargement of the duties and an increase of the executive force of the agricultural division were recommended. In this and the preceding report meteorological observations were omitted.

From December 13, 1860, to March 28, 1861, S. T. Shugert, esq., was Acting Commissioner. He was succeeded on the date last named by Hon. David P. Holloway, of Indiana, whose annual report, appearing in the following year, (1862,) was the most complete agricultural manual the Patent Office had yet issued, but it did not contain one line of statistics relative to agriculture or related subjects, except some tables of milk production, nor a single letter concerning the condition of the crops. It was exclusively composed of essays. The report was the last of its kind. Thereafter the annual reports were devoted more to the presentation of the current facts of agriculture in the United States, especially the recording of its achievements, and less to the presentation of special theories and other matters which properly pertain to the province of the journalist and book publisher.

During Mr. Holloway's administration the Department of Agriculture was organized. Reference has already been made to the opinion expressed by several Commissioners in favor of an enlargement of the duties of the agricultural division. Commissioner Holloway, in his first annual report, which appeared in January, 1862, boldly and ably reiterated and enforced this opinion. He urged the creation of a separate Department of the Government—a Department of the Productive Arts—to care for all the industrial interests of the country, but especially agriculture. The Commissioner's earnest and elaborate plea, aided by other influential representations, prevailed with Congress. A portion of the plan for the establishment of a Department of Industry was adopted.

On the 15th of May, 1862, the act establishing the "Department of Agriculture" became a law, and on the 1st day of July the Department was formally organized in the rooms of the Patent Office previously occupied by the agricultural division of that bureau. The first section of the act declared the "general designs and duties" of the Department to be "to acquire and diffuse among the people of the United States useful information on subjects connected with agriculture in the most general and comprehensive sense of that word, and to procure, propagate, and distribute among the people new and valuable seeds and plants," and the succeeding sections provided for the appointment by the President of a chief executive officer, to be styled the "Commissioner of Agriculture." It was not, however, provided that the Commissioner, although the head of an independent Department of the Government, should be a member of the Cabinet.

Hon. Isaac Newton, of Pennsylvania, who had been, since early in 1861, the superintendent of the agricultural division of the Patent Office, was appointed by President Lincoln the first Commissioner of Agriculture. Upon assuming the duties of his office, he at once proceeded to organize the Department in accordance with the liberal spirit of the act creating it. The time was pregnant with mighty events, and every Department of the Government felt the stimulus of the grave perils which beset the very existence of the nation. The clerical force of the former agricultural division was increased; a chemist (Charles M. Wetherill,) was engaged, and a laboratory established; a skillful horticulturist was placed in charge of the propagating or experimental garden; greater activity in the collection and dissemination of current agricultural facts was inaugurated, and a larger quantity of seeds and cuttings was distributed.

The first annual report of the Department was a great improvement on most of the reports which had preceded it. It treated mainly of fresh topics in agriculture and connected fields of investigation and development. But its most significant feature was the revival of the long-neglected agricultural statistics, presented in connection with observations on the leading facts they developed, and followed by full tables of agricultural exports. The eighth census furnished the data for the tables of agricultural production. The important feature thus revived was specially required by the terms of the act creating the Department, and it has never since been omitted. A statistical branch was organized early in 1863, and to it was committed the collection and analysis of all statistics. Mr. Lewis Bollman, of Indiana, was appointed statistician. To ascertain at the earliest practicable period the condition of the crops, their yield, the prices obtained for them, and other facts connected with current agricultural operations, the Commissioner issued, during 1863, periodical circulars to farmers in every county in the loyal States. The results thus obtained were given to the public through the medium of monthly reports, which have been continued to the present day, with such modification of their original features as time and experience have seemed to render necessary. The first monthly report was issued July 10, 1863. The publication in the monthly reports of monthly and bi-monthly meteorological tables, furnished by the Smithsonian Institution, was commenced at the same time. These tables were condensed for the ensuing annual report. The same arrangement is yet in force.

The employment of a skillful gardener was one of the most auspicious incidents of the first year of Mr. Newton's administration. He was fortunate in procuring the services of Mr. William Saunders, who has ever since given to the important duties assigned to him an intelligent and conscientious devotion. In the first report of the Commissioner, Mr. Saunders presented to the public a comprehensive programme of the uses to which he deemed it desirable to devote the experimental garden, and this programme is observed to-day.

In the second year of Mr. Newton's administration, (1863,) the number of packages of seeds distributed was 1,200,000, and of bulbs, vines, cuttings, and plants, 25,750. Mr. Townend Glover was employed as entomologist, a position which he has since continued to hold. The report issued in 1864, embracing the operations of the Department for 1863, contained the first attempt that had been made since the days of Ellsworth and Burke to ingraft upon the census returns the statistics of the yearly progress of agricultural production. The tables given in its pages, compiled from the monthly reports, showed the average yield per acre of the several crops of 1863, and the average prices obtained for them in the month of November of that year. From that day until this the Department has aided greatly, by the publication of tables of this character, in protecting alike consumers and producers from the exactions of grasping speculators. A Maine farmer once wrote to the Department: "Your monthly reports give me just the information I have wanted for years. Knowing the supply and demand, I am able to sell at my own price, and we can also foresee what will probably be wanted next year. Give practical farmers facts and let gentlemen of leisure theorize."

The annual report of the operations of the Department for 1864 contained a paper on "Pennsylvania barns," from the pen of Hon. Frederick Watts, recently appointed Commissioner of Agriculture. In this and the following year Mr. Henri Erni acted as chemist. In 1864

Government reservation No. 2, lying between Twelfth and Fourteenth streets, and the canal and B streets south, embracing thirty-five acres, was assigned to the Department for experimental purposes. During 1865, 1866, and 1867 a large force of laborers was engaged on this reservation in testing the merits of many varieties of cereals, grasses, potatoes, tomatoes, and other agricultural products. At one time seventy varieties of potatoes were in cultivation; at another, sixty-seven varieties of spring wheat and fifty-five varieties of fall wheat. In 1865 a geological and mineralogical cabinet was commenced, and extensive additions were made to the chemical laboratory and the museum of fibers, cereals, specimens in natural history, &c. The annual report for this year was prepared in 1866, and edited by J. R. Dodge, who had been engaged on the statistical work of the Department since its organization. In 1866 Mr. Dodge was appointed statistician of the Department, and has since edited all its reports. The annual reports for 1862, 1863, and 1864 were issued under the supervision of James S. Grinnell, esq., chief clerk of the Department. In 1866 Thomas Antisell, M. D., was appointed chemist.

Owing to the large increase in the business of the Department, it was found that the rooms appropriated to its use in the Patent Office building were entirely inadequate. Congress, therefore, in 1867, upon the earnest recommendation of Commissioner Newton, appropriated $100,000 for the erection of a Department building on a portion of the Government reservation above described. The erection of the building, an ornamental brick structure, was commenced late in the summer of that year. Congress also appropriated $10,000 for the purchase of the private museum of natural history and other objects owned by Mr. Glover, the entomologist, and the collection was accordingly transferred to the Department.

On the 19th of June, 1867, Commissioner Newton died in Washington, from the effects of overwork on the experimental farm in July, 1866. He was born in Burlington County, New Jersey, in 1800, and passed his early years and the greater part of his long life on a farm. Shortly after attaining his majority, he settled on a farm in Delaware County, Pennsylvania, which became celebrated for its neatness, order, and productiveness. He eventually took rank among the model farmers of the State; was one of the first and most active members of the State Agricultural Society, and for years was prominent in urging upon Congress the policy of establishing the Department of Agriculture over which he was subsequently called to preside. John W. Stokes, esq., the chief clerk of the Department, acted as Commissioner until November 29, 1867, when Hon. Horace Capron, of Illinois, was appointed Commissioner.

One of the first of Commissioner Capron's official acts was the abolishment of the experimental farm, previously determined upon, by which the expenses of the Department were at once greatly decreased. Attention was also promptly given to the execution of the plans previously prepared by Mr. Saunders, the superintendent of the experimental garden, for the improvement of the grounds of the farm with a view to producing a pleasing and artistic landscape effect. Embraced in these plans was the planting of an arboretum, comprising a complete collection of all hardy trees and shrubs, arranged in their natural orders. As a result of the joint efforts of the Commissioner and Mr. Saunders, the grounds surrounding the Department building are now the most attractive in Washington. They not only gladden the eye of the visitor to the national capital, but they help to educate the rural taste of the nation itself.

In 1868 the Department building was finished, and in August the records and other property of the Department, with the exception of the museum, were moved from the Patent Office building. The museum was moved a month or two later. In 1869 the small botanical collection of the Department was greatly enlarged by the transfer of the extensive and valuable collection of the Smithsonian Institution, which had been contributed by various Government surveying and exploring expeditions. Mr. C. C. Parry, a scientific botanist, was placed in charge of the herbarium thus created, and the botanical work of the Department has since remained in his hands. In 1870 the large conservatory of the Department was commenced, and in 1871 it was completed.

On the 27th of June, 1871, Commissioner Capron tendered to the President his resignation, to take effect August 1st, and Hon. Frederick Watts was commissioned in his stead. General Capron was born in New York, and was the son of Dr. Seth Capron, who served with distinction in the Revolutionary army. His attention was early directed to cotton manufacture, a business which he prosecuted for many years. In 1836 he became the owner of a large manufactory of cotton goods and of another manufactory of cotton machinery at Laurel, Maryland. He also became the owner, at the same place, of an exhausted farm of 1,200 acres. This farm he brought to a high state of fertility, and by his management of it, and his frequent contributions to the agricultural press, he became widely known as a progressive farmer. In 1854 he removed to Illinois and again engaged in farming on a large scale. In 1862 he recruited the Fourteenth Regiment of Illinois Cavalry, and served with it to the close of the war. He was successively commissioned lieutenant colonel and colonel of the regiment, and at the close of the war was made brigadier-general by brevet. November 29, 1867, he was appointed the second Commissioner of Agriculture.

The total expenditures by the Government for the encouragement of agriculture, from the first appropriation of $1,000, in 1839, to the 30th day of June, 1871, exclusive of the cost of printing the agricultural reports, were $2,019,893. The total cost of the building erected for the use of the Department of Agriculture, furniture included, was $140,000, and the cost of the conservatory was about $25,000.

HON. HENRY L. ELLSWORTH.

The following sketch of the life of Hon. Henry L. Ellsworth, first Commissioner of Patents, and founder of the agricultural division of that bureau, is furnished by one of his near relatives, and is given here as written, in lieu of a longer sketch, the preparation of which has been meditated:

Hon. Henry L. Ellsworth was born at Windsor, Connecticut, in the year 1790. He was the twin-brother of Hon. William W. Ellsworth, late chief justice of Connecticut, also deceased. His father was Hon. Oliver Ellsworth, third Chief Justice of the United States. His mother was Abigail Wolcott, a relative of Oliver Wolcott, a signer of the Declaration of Independence. Mr. Ellsworth was a graduate of Yale College in 1810, was a classmate of Professor Morse, and perhaps did more than any other single man, when Commissioner of Patents, to secure the appropriation from Congress to test the practicability of the telegraph, in which he firmly believed.

He studied law at the Litchfield (Connecticut) Law School, and married for his first wife Nancy Goodrich, daughter of Elizur Goodrich, treasurer of Yale College. His father, Oliver Ellsworth, was both a farmer and a lawyer, in the days when the men of mark lived in the country and upon farms—not simply at country-seats—and not in the towns; and he himself was in the same way a farmer, living first at Windsor, Connecticut, and carrying on the home farm, at the same time that he commenced the practice of law at Hartford. He, however, soon removed to Hartford, and preferred to engage in politics and various pursuits rather than adhere to his profession. My impres-

sions are that he was once a candidate for mayor of Hartford, and again for the legislature. In one case, I think, the twin-brothers ran against each other, and Henry L. was defeated. He was by President Jackson appointed commissioner to the Indian tribes of the then far West, and afterward Commissioner of the Patent Office, which, under his advice and suggestion, was created a separate bureau of the Government. When Commissioner to the Indians, on one of his trips toward the Rocky Mountains, Mr. Ellsworth was accompanied by Washington Irving. He was the first head of a bureau who was invited to take a seat in the Cabinet.

His mind possessed great quickness and versatility, and he thoroughly enjoyed the duties of his position, and was always ready to listen with eagerness and interest to any suggestion of possibilities in the matter of progress and invention. He was the most thoroughly amiable of men, and always accessible to all. His interest in agriculture was genuine and enthusiastic, and his appreciation of the agricultural wealth of the country, and the growth of the newer portions of it, was far in advance of his time. In fact, he had the misfortune to be in advance of his time on the entire subject of agricultural processes, machinery, &c., and of course incurred the charge of being visionary. That he was a theorist rather than a practical farmer was his glory; that he was an enthusiast was a great merit; that much which he discussed and felt hopeful of proved to be fallacious was to be expected in one whose business was at that early day to stimulate and encourage progress and discovery. His motto as to all inventions was, "With hopefulness to all, and prejudice toward none." The country will perhaps never know the debt it owes to him for the stimulus given by his labors and publications in the Patent Office.

Early in 1834, or soon after, he commenced to make investments in wild lands at the West, principally in the vicinity of Lafayette, Indiana. He was one of the earliest to foretell the value of prairie lands, and invested in these when others laughed at his folly, declaring that they were so far from timber as to be forever uninhabitable. He also interested capitalists and public men from all sections of the country in the same class of investments, and in some counties at the West almost the entire lands in the county were entered by him for himself and the parties he represented; as, for instance, the counties of Warren and Benton, in Indiana.

On leaving the Patent Office, in 1845, he removed to Lafayette, Indiana, to take charge personally of his large landed interests. He had already improved large sections, though still residing in Washington, and now, though residing in the town, he commenced other large improvements in Tippecanoe, Benton, and Warren Counties, Indiana. He was always experimenting and striving after improved results, and the use of machinery in agriculture—an idea at that time considered nearly chimerical. He probably used the first mowing machine ever introduced upon the prairies. He was especially interested in the improvement and propagation of swine, and, much to the annoyance of his family, when living in Washington he had extensive piggeries in the vicinity of that city.

Mr. Ellsworth was an earnest Christian, and his purity in thought and language, and his courtesy and polish, were something remarkable in one who disregarded the externals of dress and equipage so entirely as he seems to have done. His life was exceedingly active and laborious, and he finally became a victim of overwork, like so many of the men of the present time, leaving his estate to be a subject of controversy between the members of his family and Wabash College, Indiana, on the one side, and the corporation of Yale College and various religious and charitable societies on the other, growing out of the existence of two wills. With a good sense and temper rare on such occasions, the controversy was withdrawn from the courts and compromised to the satisfaction of all parties.

Mr. Ellsworth was thrice married. The second time to Miss Marietta Bartlett, of Guilford, Connecticut, and the last time to Miss Catharine Smith, of Durham, Connecticut, who survived him. He died at Fair Haven, Connecticut, December 27, 1858, having removed from Indiana only a few months before his death, and was buried at New Haven, Connecticut. As the father of the Patent Office in several important particulars, his portrait should certainly grace its walls, and especially the walls of the Department of Agriculture.

EXTRACTS FROM CASUAL CORRESPONDENCE, ETC.

SEDGWICK COUNTY, KANSAS.

A letter from William Packard, one of our correspondents in this new county, says:

This county was organized in April, 1870. By comparing the election returns we find that the number of voters in one year, to April, 1871, had increased nearly nine to

one; and in traveling through the county we see that land has been brought into cultivation in nearly the same proportion. That portion of the county lying south and west of the Arkansas River, where one year ago was a vast uninterrupted prairie, is now dotted with houses, shanties, dug-outs, and tents, and in some cases the settler is still living in his wagon, with from five to forty acres of corn and potatoes growing on his newly-taken homestead, he and his being animated by the hope of a pleasant home all their own. Those who have matured one crop are now old settlers, and those who have raised two crops are the oldest settlers. The old settlers have at least doubled their crops, as many who had 30 or 40 acres planted last year have increased to 80 or 100 acres. The amount of land brought into cultivation so soon is explained by stating that we do not fence; the sod is turned and the crop planted.

We have our troubles as well as other agriculturists. The blackbirds and the yellow-breasted blackbirds take the young corn so badly that it is hard to get a good stand. We fear your entomologists can do nothing for us, as the birds eat the young and tender shoot when it is three or four inches high. They will eat the white and tender part of the stalk, leaving the roots and tougher blades as a monument of their mischief. Those who are farming in the older parts of the country may think this a little thing to complain of, but we begin to think it quite serious; for three springs in succession we have had to plant three times each year, and then have a slender stand, with seed corn that was worth from $2 to $4 per bushel, besides the labor and disadvantage in throwing the ground into a bad condition to cultivate. We have a few potato-bugs here, but as we have no railroad near enough to dispose of our quails and prairie hens, there is little danger of the bugs doing much harm.

Our sand-plums which grow wild are now ripe; they are small and tart, and recommended only for their earliness. I set last spring a small orchard of trees one year old from the seed, to see what they will be under cultivation.

WESTERN PENNSYLVANIA EXPERIMENTAL FARM.

Pennsylvania has three experimental farms, all under the control of the faculty of the State Agricultural College, assisted in each instance by a local committee. They have a regular system of rotation prescribed for them, running through a period of five years. The prescriptions are very minute, extending in certain cases so far as to require the transplanting of corn, when necessary to make up the required number of three in a hill. The experiments are conducted on plots containing one-eighth of an acre each, and there are one hundred and fifty of these plots on each farm. The farm at Indiana contains 119 acres of land of medium quality, part lying on gentle slopes, and part being flat and wet. Operations have been conducted for two years, during which time many practical experiments have been made. This year fourteen varieties of wheat have been tested, including the Tappahannock and Touzelle; one new variety of rye, the Bremen; several varieties of barley, of which the common four-rowed is the only one found desirable; twelve varieties of oats, including the White Schonen and Excelsior; forty-three varieties of potatoes, including the Early Rose; and several varieties of corn. We hope the superintendent, Mr. A. J. Hamilton, will publish detailed results of his experiments as soon as they may be completed, that the farmers of Pennsylvania and the country may be immediately benefited by them. Unnecessary delay frequently occurs in giving to the public the results of experiments conducted by State institutions.

IRRIGATION.

A large meeting of farmers was held at Waterloo, San Joaquin County, California, early in June, to devise means for the speedy construction of a canal to lead the waters of the Mokelumne River southward for the irrigation of farming lands. It was announced at the meeting that the San Joaquin and Calaveras Water and Irrigating Company proposed to irrigate the lands of farmers residing on the route of the proposed canal for 75 cents per acre per annum, for a period of four to six years, and

that it would commence the construction of the canal as soon as they should be guaranteed the payment of this rate upon 50,000 acres for the next four years. It was considered highly probable that the proposition would be accepted by the farmers at a subsequent meeting. The construction of this canal, it is said, would forever insure against the effects of drought over 200,000 acres of land, and make that large tract the most valuable land in the State.

RUST ON WHEAT-BLADES.

Our correspondent in Ontario County, New York, writes as follows:

The drought of the last half of May, continuing until the 23d of June, has materially reduced the average condition of the spring crops, excepting corn and potatoes. Not one in five thousand of the leaves of winter wheat in this county has escaped the red rust. This commenced on the 25th of June, after the rain of the 24th, and the wheat fields now wear a brown and somber hue. Observing farmers regard this blighted condition of the leaf at this critical period in the growth of the plant as most fortunate, insuring a plump and perfect berry at maturity. The theory is, that when the leaf rusts just previous to the ripening of the crop, the flow of sap in the straw is in a measure arrested, so much so that thereafter no excessive flow can occur to burst its outer coatings and produce "black rust"—the only rust that seriously diminishes the yield and shrinks the berry. The winter wheat crop of Ontario County is therefore considered assured, and t will be bountiful.

WHEAT IN ILLINOIS.

Mr. C. H. Murray, of Clay City, Illinois, writes us as follows, under d ate of June 17:

To-day about finishes one of the grandest wheat harvests that have ever been known in Southern Illinois. It is now safe in the shock, and almost beyond the possibility of being injured in any way. The crop, both as to quality and quantity, is believed by many to be superior to any ever before harvested in this part of the country. Many fields will yield as many as 35 bushels per acre, while the general average will be much above 20 bushels. The quality could hardly be better. The grain is clear and lmost bursting with richness. The crop between this place and Saint Louis, and hroughout Richland, Wayne, and Clay counties, is especially heavy.

RAMIE.

The interest in this new textile is increasing in the South. We hear recently of many experiments in its cultivation this year on a larger scale. Mr. F. T. De Lacroix, of New Iberia, St. Martin's Parish, Louisiana, is this season cultivating eleven acres of the plant, and is represented to be so well assured that it is a profitable crop that he proposes next year to plant it more extensively. In New Orleans may now be frequently seen dress-patterns, handkerchiefs, &c., made of ramie, which strongly resemble silk.

BEET SUGAR IN WISCONSIN.

A beet-sugar manufactory was established last year in Black Hawk Valley, twelve miles from Sauk City, in Sauk County, Wisconsin, by thirty-four German farmers, upon the coöperative principle. They planted 180 acres in roots, one-sixth of which failed through drought; the remainder averaged about ten tons per acre. The manufacturing operations of the company were embarrassed by a variety of causes, prominent among which was the delay in receiving machinery from Europe, caused by the Franco-Prussian war. The manufacture was not commenced till the middle of February, when it was found impossible to work up the entire crop, the larger portion of which was fed to stock. Under all these disadvantages some 40,000 pounds of sugar were made

and marketed at an average rate of 10 cents per pound, including all grades. The coming year at least 200 acres will be cultivated with sugar beet, and operations will be gradually extended. The machinery in use was partly imported from Europe and partly from Fond du Lac, Wisconsin, and Chatsworth, Illinois. It cost $25,000, and the building $10,000. The capital of the company is limited. Its distance from machine-shops for repairing, and the necessity of wagoning twelve miles the sugar product and some of the material used in its manufacture, are drawbacks to the enterprise; but under the efficient management of Mr. Wifferling, the superintendent, the company is sanguine of success, both in making good sugar and in realizing a fair profit upon the investment.

MODE OF CURING FIGS IN ASIA MINOR.

E. J. Smithers, esq., United States consul at Smyrna, communicates to the Department some facts in regard to the process of curing figs in that region. The fruit is allowed to ripen on the tree and to fall to the ground, where it is allowed to remain three or four days, or until dry enough to bear transportation. It is then collected in hair sacks, and tightly pressed, in order to save space and to prevent fermentation. The sacks are then taken early in the morning to the local market, where professional packers resort to purchase material for the day's packing. At the packing-house the different qualities are assorted, and the fruit skillfully manipulated and moistened with salt water. Each quality is then placed in boxes of different sizes for the general market. The refuse is either sold on the spot for distillation of spirits, or packed indiscriminately, with the feet, into large boxes, to be sold as the commonest quality. Figs grown here are of a large whitish variety, thin skinned, very juicy and sweet, but unpalatable when fresh. The first is largely cultivated in the neighborhood of Aidin, but the best quality is grown at Nasli.

COTTON AND CORN IN TEXAS.

John Dickinson, esq., of Houston, Texas, writes to the Department as follows, under date of July 1, in relation to the cotton and corn crops in Texas:

> The months of April and May were too wet in many portions of the State, and heavy driving rains did much injury by washing the soil. June was very favorable; dry and hot, enabling every one to free their fields from grass and weeds. Showers everywhere are needed now, particularly for the late corn, the bulk of the planting. If the dry weather continues a few weeks longer this crop will be seriously diminished. If no rain falls soon we may look for the very early maturing of cotton, at the expense, however, of great wastage, shedding of forms, blooms, and bolls. The general opinion is that the Texas crop this year will be one-fourth less, under even ordinary picking facilities, than that of last year, and that it will be sent earlier to market, and be of a much better quality, as far as careful handling is concerned. The number of bales already received at our ports is 300,000, and it will reach a little beyond it. The crop, apparently, is pretty well in.

HEAVY WOOL-CLIPS.

The correspondent of the Department in Alameda County, California, sends us a sample of wool taken from the hip of a fleece that weighed 7$8\frac{1}{2}$ pounds, sheared from a French merino ram, bred by John D. Patterson, esq., on his breeding ranch in that county, from stock imported by him direct from France; length of wool on the hip, one foot. The first fleece sheared from this ram, when he was sixteen months old,

weighed 42¾ pounds. The fleece from which the sample sent to the Department was taken was the second shearing. The first two fleeces taken from this wonderful ram therefore weighed 121¼ pounds.

Our correspondent in Clinton County, Michigan, writes that a farmer in that county sheared 160 pounds of wool from twenty-eight ewes, the breed not stated.

WHEAT IN IOWA.

A correspondent of the Department, writing from Page County, Iowa, says:

Fall wheat has made a good harvest. Last winter being a mild one, the stand left this spring was good. The season has been favorable to its growth and ripening. On account of the character of our soil, being light, sandy, vegetable mold, winter wheat freezes out badly, hence it has not been cultivated extensively until within the last two years. Our farmers have ascertained they can succeed by planting it with the drill. Spring wheat, however, is yet our main dependence for the supply of this kind of farm product. It has been cut short two-thirds by the ravages of the chinch-bug, (*Micropus leucopterus*, of Say.) Why this should have occurred is rather a mystery, for we have been abundantly favored with heavy rains in sufficient quantities to make the season a genial one. The heavy rains ought to have destroyed the bug, but they did not.

COTTON IN ILLINOIS.

The correspondent of the Department in Williamson County, Illinois, writes as follows:

Cotton has almost ceased to be cultivated in this county. It cannot be raised for much less than five cents per pound in the seed. It is generally sold to the merchant or speculator in the seed. Last fall and winter the price was uniformly three cents per pound. The great drawback to its culture is the picking, which has all to be done by hand, and which costs from a cent to a cent and a half per pound. A good average day's picking, for a boy or girl of from twelve to sixteen years of age, is from fifty to seventy-five pounds. But, inasmuch as it is a cash article, if the farmers could be sure of four and a half or five cents per pound, a large breadth of ground would be planted.

THE COMPASS PLANT.

In the monthly report of this Department for March and April reference was made to the compass plant, (*Silphium laciniatum*,) which it was therein stated "is alleged to possess the remarkable tendency to have the plane of its leaves directed north and south to such a degree that these points of the compass can readily be determined from their examination." A letter, inclosing a diagram of a leaf of the plant, has since been received by the Department from S. J. H. Snyder, of Monrovia, Kansas, in which the opinion is expressed that the plant does possess the quality attributed to it. The writer says:

Having been a resident of Kansas for sixteen years, I have had abundant opportunity to become fully acquainted with the plant and its habits, and I am fully persuaded that the course north or south is so infallibly indicated by its leaves, that I would not hesitate to follow their directions for hundreds of miles. The leaves of the plant from which the accompanying sketch has been made were taken from my orchard, which has been tilled for years, and the plants cut up and turned over and under, and every way; yet every time they come up, either from the old roots or from seed, they invariably turn their leaves in the same direction. There can be no question of this fact, and if, in a group of these plants here and there, a leaf varies a little from the true course, the appearance of the stem and its relation to the other leaves show the reason for such discrepancy. The average of such a group is infallible.

The stalk of the plant is from three to five feet high, leaf about twelve inches long, and flower resembling a miniature sunflower. Mr. Snyder says it is sometimes called polar-weed, gum-weed, resin-weed, &c. The last names are given to it because of the resinous gum which exudes from its stem and leaves, especially when wounded. This gum is chewed, and the plant, as well as its resinous gum, is considered highly medicinal.

SCIENTIFIC NOTES.

EFFECT OF VARIOUS MANURES ON THE GROWTH OF GRASS.—Experiments have been recently instituted by the Agricultural College at Worms, Bavaria, for the purpose of ascertaining the relative effect of several different manures upon the growth of grass. In presenting an account of the results obtained we may state, for the more satisfactory understanding of the subject, that the "morgen" amounts to nearly three-fifths of an acre. Muck increased the yield of hay, per morgen, by 7 cwt., but deteriorated the quality of the grass. But this is believed to have resulted from the use of muck not sufficiently seasoned by exposure to atmospheric action. Human excrement gave an increase of $13\frac{3}{4}$ cwt. per morgen, while the growth was very thick even in the poorest places. The cows, however, refused to eat the grass, although they appeared to have no objection to the hay. It was believed that the grass of the following season would be palatable to them. Liquid manure from stable drains and sinks had a powerful effect, and increased the crop of hay by $14\frac{1}{2}$ cwt. per morgen. The grass was good, but the flowering herbs disappeared. Two cwt. of bone-dust, fermented in a compost of earth and liquid manure, increased the yield of hay, per morgen, 12 cwt., and developed an abundance of white and red clover; and its influence, it was thought, would extend through several seasons. But the best effect as to the quality, though not the quantity of grass, was obtained by the application of potash salts. The grass was fine and tender, and almost free from the coarse herbs, with an increased yield of $11\frac{1}{2}$ cwt. per morgen.

CULTIVATION OF ASPARAGUS.—The culture of asparagus was lately the subject of discussion by the members of the Horticultural Society in Dessau; and among the views expressed were the following: That the old method of burying large quantities of manure deep under the surface was objectionable, since asparagus does not derive its nourishment from a great depth, and the plants often become too deeply imbedded when the thick substratum of manure collapses by rotting. The preference often given to old plants, in making selections for a new bed, was also considered a mistake. Plants become sickly and less vigorous in the seed bed, so as to be much more sensitive to the change in transplanting. Southern exposure, shelter from cold winds, a porous soil, and the total absence of trees, were recommended as essential conditions to the highest success. The soil is to be turned to the depth of from two to three feet, and then manured to the depth of one foot. This is most conveniently done in autumn, during dry weather. Spring is the best time for planting, and the best direction of the trenches for the reception of the plants is from north to south. The earth taken from the trenches is "walled up," as it is termed, between the rows, and upon these other vegetables may be cultivated while the asparagus bed is young; but they are eventually absorbed in filling up the ditch around and between the plants. Well-rotted manure, or suitable compost, is combined with the earth of the walls for this purpose. Besides giving constant attention to stirring the soil and weeding, the young plants need to be watered regularly whenever the state of the weather requires it.

A NEW FIBER, (APOCYNUM.)—Nettings and cordage were to some extent, at one time, made in Virginia and other States of North America of the fiber of the bark of *Apocynum cannabinum*. Although the application has almost entirely gone out of use in America, we find in the report of the Russian exhibition in St. Petersburg, in 1870, that

various articles were there shown as made of a similar plant which are well worthy of attention. Woven fabrics of snowy whiteness and silken gloss, brownish-yellow fishing nettings, hunting pouches, shoes, &c., from Southern Siberia, were strikingly beautiful. They were all made from fibers of *Apocynum venetum* and *Apocynum Sibiricum*, the use of which, for such purposes, is quite common in Southern Siberia, along the Caspian Sea, the Steppes of Southern Russia, &c. The plant grows to the height of from two to eight feet, is easily stripped of its bark after roasting, is readily separated into its fibers, and, by bleaching, becomes of a beautifully white and clear luster.

Cattle injured by eating green flax.—Recent observations in Prussia have shown that the eating of green flax by cattle may be seriously injurious. A well-kept cow suddenly became ill, with high fever and violent diarrhœa, accompanied by trembling of the muscles, anxious look, drying up of the milk, and a lowering of the temperature at the extremities. On inquiry into the cause of this sudden attack, it was found that the animal had eaten a great quantity of the weedings from a flax field. Strict diet, without any medicine, improved her condition during the day, but the next morning, epileptic convulsions ensuing, her owner had her killed, when, on examination, solid masses of the flax were found within the stomach.

Feeding potatoes to horses.—In Germany, where potatoes are so much cheaper than grain, the experiment has been repeatedly tried of feeding horses upon them, at least in part, and this, as we understand, has proved quite successful. In one instance five four-horse teams were kept hard at work and in good condition on a daily ration, for the twenty horses, of 1½ cwt. of hay, 8 bushels of potatoes, 50 pounds of meal, and a liberal allowance of chopped straw. The potatoes were steamed, mashed, and mixed with the meal while hot, and then covered up and allowed to remain for a time, during which they undergo a slight fermentation and evolve a quantity of carbonic acid. The chopped straw was worked in just before feeding. This trial was continued for more than four months, and found to agree with the horses, while at the same time it proved satisfactory in point of economy. As this food must be sweet and clean, great care is necessary to prevent the vessels in which it is kept from becoming sour.

Value of Ramie fiber.—The practical difficulties attendant upon the manipulation of the Ramie fiber seem to be disappearing, as we find that this substance is now quoted in the Liverpool market at $264, in gold, per ton. This will doubtless be good news to such of our readers as have either actually entered upon the cultivation of the plant or have it in contemplation, as at this price it is said to be considerably more profitable than cotton. Its advantages, as claimed, lie in its ready and vigorous growth, continued from year to year, and, once planted, it requires no renewal or attention for a long time. It is said not to be destroyed by worms, not to suffer from peculiarities of climate, soil, insect enemies, &c., and to require but little labor to establish a plantation; where it grows rapidly and yields largely, and commanding a ready market at a high price, there now seems nothing needed to stimulate its cultivation to a great extent. The portion of our country where this plant can be raised to advantage is perhaps limited; but within its natural area it is thought that it can be produced with greater profit than almost any other species of fibrous plant. The drawback to this flattering picture lies in the difficulty of separating the fiber from the bark, and the bark from the stalk; but this the editor of the New York Ship-

ping List thinks will be eventually overcome, as it is not often that any practical problem of this kind long resists the pertinacious attentions of modern inventors. As we have already informed our readers, the East Indian government has proposed a prize of $25,000 for a machine or process that will accomplish this object. The award has not yet been made, the period having lately been extended, owing to the unsatisfactory nature of the competing machines. The offer, however, still holds good, and the prize will, we presume, be assigned in due course of time.

Experiments on the germination of seeds.—Mr. Vogel, of the Bavarian Academy of Sciences, has made a series of interesting experiments on the germination of seeds exposed to the action of different chemicals, either in a solid or a liquid condition. He found that many chemical combinations, though absolutely insoluble in distilled water, injured or destroyed the germs of seeds, and inferred that the process of germination itself produces vegetable acids which then act as solvents. He was actually able to determine, by sprouting barley, clover, and water-cress, the amount of said acids, which, though differing with different seeds, was always quite considerable. He experimented with prussian blue, carbonate of magnesia, oxide and carbonate of copper, chromate of mercury, sulphur, and antimonial preparations, and, more recently, with aniline and amorphous phosphorus, and found that all these insoluble substances prevented germination, either entirely or to a great extent, while the presence of sublimed indigo had not the least effect. Of solutions, he mentions chromate of potash (nitrate of silver) and arsenious acid, as especially injurious, and states that other mineral acids, when very much diluted, are less obnoxious. Remarkable for the anomaly is the destructive influence of acetic acid, so harmless to the animal organism, which, even in very small quantity, prevented germination as completely as the poisonous oxalic acid; prussic acid, on the contrary, only retarded the development of the germ. Being volatile, it disappears from the solution, and a great proportion of the seeds germinated, while arsenic acid, destroyed the germs entirely. Mr. Vogel also exposed his seeds to an atmosphere of coal gas, and found that when thoroughly purified its influence was not deleterious. Believing that the destructive action of the impure gas is due to the admixture of tar, he examined some of its constituents, and found naphthalin to be quite harmless to vegetation, while a minimum of carbolic acid was sufficient to kill every trace of germination.

Raising fruit trees from the seed.—Mr. A. Czerny, of Austria, states, as the result of long-continued observations and experiments, that the strongest and best fruit trees can be raised from seed, thus obviating a great deal of expense and disappointment to the pomologist. According to his observations, the extent and ramification of the roots of a healthy tree is to that of its crown in the ratio of three to two, so that the action of the roots is always preponderating. In this relation he finds the reason why fruit seeds from trees, budded or grafted upon indifferent stocks, have always been found unreliable, and he endeavors, as the first step, to obtain good trees grown upon their own stock, the seeds of which, he says, will reproduce their parents with certainty. To this end he layers a branch of a good tree, which, when well rooted, serves him as stock, into which he introduces buds or scions of such varieties as promise to improve the original fruit. By judicious cross fertilization he obtains fruit, the seed of which will propagate, to a greater or less extent, the good qualities of the varieties used in hybridizing, and thus a new fruit is originated which, when suitable, can always be reproduced

from its seed. Such trees, says Mr. Czerny, are more healthy and vigorous, (having never been wounded by the knife,) bear earlier, and when accidentally injured in the stem, throw out shoots identical with those of the original tree.

PRESERVING THE FLAVOR OF BUTTER.—The German Agriculturist says that a great portion of the fine flavor of fresh butter is destroyed by the usual mode of washing, and he recommends a thorough kneading for the removal of the buttermilk, and a subsequent pressing in a linen cloth. Butter thus prepared, according to our authority, is preëminent for its sweetness of taste and flavor, qualities which are retained a long time. To improve manufactured butter we are advised by the same authority to work it thoroughly with fresh cold milk, and then to wash it in clear water; and it is said that even old and rancid butter may be rendered palatable by washing it in water to which a few drops of a solution of chloride of lime have been added.

NEW FODDER PLANT.—A new kind of fodder plant (*Gymnothrix latifolia*) has recently been introduced into France from Uruguay. It is not unlike the sugar-cane in appearance, grows eight or nine feet high, and is said to make excellent fodder either when green or cured.

DWARF RAGWEED.—At a late meeting of the Academy of Natural Sciences of Philadelphia, Mr. Thomas Meeham exhibited a small plant of the common ragweed, *Ambrosia artemisiæfolia*, which had grown in a pot in his hot-house. The plant, little more than an inch in height, was already provided with fertile flowers and also bulblets. He remarked that it was a common impression that when land was put down in grass the ragweed disappeared, but that after an unlimited number of years, when the ground was broken up, the weed reappeared, as supposed from the development of seeds, which had long remained in a dormant condition. If such pigmy plants as the one exhibited can perfect seeds, it is evident that a multitude of them might perpetuate themselves among the grass unnoticed from year to year, until under favorable circumstances a crop is produced, which becomes conspicuous from their size. Thus their occurrence may be explained without the necessity of an indefinite extent of vitality.

CARBOLIC ACID FROM ANDROMEDA PLANT.—It is stated that carbolic acid has lately been obtained from a species of *Andromeda*, occurring in the Neilgherry Hills of India, and that, being less deliquescent and far more pure than ordinary carbolic acid, it may be made to serve as a substitute in delicate medical cases. The discovery is considered one of importance by the East Indian government, and measures are proposed for utilizing it on a large scale. We have many species of this same genus in North America, but it is questionable whether, in the abundance of cheaper sources of supply, it would be a profitable business to go into the manufacture.

VALUE OF THE SUNFLOWER PLANT.—Attention is called by the editor of the Journal of Applied Science to the great value of the sunflower plant in various economical applications. According to this article, the sunflower can be cultivated very readily, an acre of land sustaining 25,000 plants at twelve inches distant from each other. The flowers are very attractive to bees and furnish a great amount of honey. The average production of seeds may be estimated at fifty bushels to the acre, yielding fifty gallons of oil. This is said to be equal to olive oil for table use, and is well adapted to burning in lamps, soap-making, and painting. The refuse of the above quantity of seed will produce 1,500

pounds of oil-cake, and the stalks may be either burnt to furnish potash, or, when treated like flax, may be made to yield a fiber as soft as silk, and in large quantity.

Egg-oil.—Few of our readers are aware, we presume, that an oil can be made from the yolk of eggs, or that this is manufactured or used in any quantity. We are informed, however, that such is the case in Russia, and that a large quantity is there prepared for various purposes. The better qualities are used for salad dressing, and considered very much superior to olive oil; while from the more common kinds is manufactured the well-known Kasan soap. Both articles are too expensive for ordinary use, the soap especially, which is only employed among the cosmetics and toilet articles of the wealthy Russian ladies.

Sand compost.—A German agricultural paper recommends the application of a kind of sand compost upon mossy meadows as highly successful. Sand, or sandy soil, is piled up, and daily watered with the liquid of stable drains or sinks. To prevent the escape of ammonia, a sprinkling of gypsum is applied. This compost is to be worked over, and after four to five weeks it is fit for use. The writer claims that the heavy sand smothers the moss, while the fertilizers promote the growth of grass, and he refers to his favorable results as proof.

Growth of plants in aqueous solutions.—Experiments have been prosecuted of late by German physiologists in regard to the cultivation of plants in aqueous solutions of different substances, without the addition of any earth; and, as the general result, we are informed that a plant will grow, bloom, and ripen fruit, without being inserted in soil of any kind, but simply in a liquid which contains eight different substances, namely: potash, lime, magnesia, iron, sulphuric acid, phosphoric acid, chlorine, and nitric acid, the nitric acid being capable of being replaced by ammonia or hippuric acid, uric acid, &c. It is furthermore stated that neither the nitrogen compounds, iron, nor any other of these eight bodies can be omitted from the fluid in question if the plants are to pass through their various stages of development without becoming bleached or prematurely dwarfed. It is also shown by the experiments that while only these eight bodies are necessary elements of our culture-plants, others, found in ashes, such as silicic acid, manganese, copper, fluorine, and soda, are to be considered, if not essential, at any rate useful. Finally, the experiments appear to show that a plant is capable of deriving the whole of the carbon necessary for its growth, for the increase of its foliage, for the formation of sugar, starch, &c., from the atmospheric air, in the form of carbonic acid, by means of the stomata of its leaves. This novel method of prosecuting investigations upon the growth of plants and the formation of their tissues and components, it is believed, tends much toward securing exact results in such researches, and in time may enable us to acquire a thorough knowledge of the phenomena involved.

Dyeing wood of different shades of aniline red.—Mr. Stubenrauch, of Fürth, has recently made the announcement that any woods naturally white, such as maple, linden, &c., can be easily dyed red, of varied and brilliant hues, by means of some of the aniline preparations, as corolin, rosein, &c. The wood is first soaked in or washed with Marseilles soap, after which a dilute alcoholic solution of the aniline color is applied, which may be repeated until the desired shade is produced. If the wood is impregnated with any pigment, it should be first bleached. For this purpose it is placed, for about half

an hour, in a bath of chloride of lime and soda; a bath of dilute sulphurous acid may then be used to remove the chlorine. A thorough washing in pure water after this should precede the dyeing treatment.

NEW VARIETIES OF POTATOES IN GERMANY.—German agriculturists speak quite favorably of some of the new varieties of potatoes recently brought to their notice. Dr. Ranch says of the early rose potato that, among a thousand varieties, none can be found like it. It is the earliest, as well as the most prolific, of all early potatoes, ripening within six weeks, and keeping well until the following spring, and even improving in taste by being thus kept. It is pronounced excellent for table use, very valuable for stock-feeding, and the richest in starch for manufacturing purposes. The bovinia, or stock-feeding potato, is of gigantic size and astonishing in its yield. Its quality is also quite satisfactory to the housekeeper. The new ash-leaved kidney potato—ashtop fluke—is a very fine table variety, quite early, keeps well, and has very few and shallow eyes. It is highly recommended as a garden vegetable.

REMOVING MOSS FROM TREES.—The removal of moss from fruit trees, as well as their judicious pruning, is of great importance to their health, this growth being not only detrimental to the vigor of the tree, but also serving as a convenient hiding-place for injurious insects. Its eradication may be accomplished by first scraping off carefully and then covering the places where it grew with a thin paste of equal parts of plaster and potters' clay, in water. The moss will disappear and the bark of the tree become smooth and healthy. Dead and broken limbs, suckers, &c., should also be removed annually, and the head of the tree always kept open to air and light. Pruning is usually done late in the fall or winter; but many horticulturists now recommend the latter part of the summer as the fitting time.

COPYING THE GRAIN OF LEATHER.—The Mechanics' Magazine informs us that by a recent process a perfect electrotype copy of the grain of leather can now be produced, which may be used in imparting an exact imitation of the grain of morocco, seal, or other skins, upon ordinary leather, so as to render them almost indistinguishable from the original. The deposit is attached to the mandril of an ordinary machine-roller, and, on passing the skin through this, the finest variation of the grain or modification of the surface, in imitation of the original, is produced. The operator takes any skin that may be desired, and supplies from it the means of preparing a fac-simile of it.

HARD WATER VERSUS SOFT.—Dr. Letheby, at a recent meeting of the medical officers of health of Great Britain, took occasion to renew his statement, already referred to in our pages, of the superiority, in a sanitary point of view, of a hard-water supply to towns over that of soft water. Basing his arguments first upon physiological considerations, he maintained that the earthy matters in the hard waters were essential for the construction of the osseous tissues, and that they supplied much of the calcareous salts necessary for the nutrition of the frame, and that, by repudiating their use, we should be throwing away one provision of nature for this purpose. No one could say that a hard water was not far more agreeable to drink than a soft water. He maintained, in the second place, that the finest specimens of the English race were to be found in regions where the waters were hard, from flowing out of, or over, calcareous strata. The same was the case with cattle and horses; witness those reared in such counties as Durham and Leicester, and the

horses of Flanders, while the Shetlands only produced a race of ponies. But his principal argument was that on classifying the towns of England, so far as their water-supply was known, according to the degrees of hardness of the waters; the average of the death-rate was least in those towns supplied with hard water, and increased as the waters became softer and softer, until it was highest in those where the water supplied was most soft. These statements, however, were met with much vigor by several speakers, among the most eminent of whom was Mr. Wanklyn, who endeavored to show that the deductions of Dr. Letheby were based upon incorrect premises, and that the case was very far from being proved.

COLORING MATTER OF WINE.—A method of distinguishing genuine red wine from the false, according to Cotteni, consists in mixing fifty parts of the liquor to be tested with six parts of nitric acid of 1.40 specific gravity, and heating the mixture to 190° or 200° F. Under these circumstances natural wine experiences no change after the lapse of an hour, while that which has been artificially colored loses its tint in five minutes.

USE OF THE SKIN OF THE OPOSSUM FOR GLOVES.—The Australian papers are congratulating the people of that country upon the demand that has lately sprung up in England for opossum skins, to be manufactured into gloves, as they appear to furnish excellent material for this purpose. As the opossum is considered a great nuisance in Australia, by its destruction of trees and injury to orchards, gardens, &c., it is anticipated that the very great call for them will do much toward keeping these animals in subjection. It is hardly necessary to say that the species in question is very different from the well-known opossum of the United States.

NEW ARTICLE OF CONCENTRATED FOOD.—A concentrated preparation of food, somewhat similar in composition and character to the celebrated "peas pudding" used in the late French and German war, is made by Mr. Batty, of England, by first reducing peas to a fine state of division, either by boiling and then rubbing them down, or by grinding into meal. To this meal he adds a quantity of Liebig's extract of beef and a small quantity of the concentrated essence of meat. He then introduces a mixture of fresh vegetables, such as carrots, turnips, onions, &c., reduced to a pulp. Mint may be introduced in the form of dry powder, and celery may be used in the form of an essence. Pepper and other condiments are added to suit the taste, and salt, as may be required.

DYNAMITE IN ARTESIAN-WELL BORING.—Dynamite, so extensively used for blasting in mines, tunnels, &c., has lately been applied in Denmark to a new purpose of great utility, viz: as an aid in boring artesian wells. The owner of a large estate wanted water for his dairy, and commenced boring for it. For 80 to 90 feet no difficulty occurred, when a stratum of flint was struck, so unyielding that it appeared advisable to give up the enterprise, but, as a last resort, dynamite was tried with the best possible result. Two pounds of dynamite, in a flask provided with isolated conducting wires, were lowered down the well-cleaned boring to its bottom, upon the impenetrable flint, and then exploded. The percussion was barely perceptible at the surface of the ground, but the water in the bore was thrown up many yards. The bore, however, filled again immediately, and it became evident that not only the flint layer was pierced, but also that strata, rich in water, were opened so as to

render further boring unnecessary. Two more charges were exploded, and the flint at the bottom was found to be broken into fragments, while the tubing was entirely uninjured. The well now yields daily an ample supply of water.

LEATHER BOARDS.—Within a few years past refuse leather, in the form of cuttings, scrapings, &c., from shoe and harness factories, has been utilized by being converted into leather boards, which are extensively employed at the present time in the United States and Europe for the manufacture of inner soles of shoes, and for other purposes, where the material is not likely to be exposed to the wet. The process of preparing these boards consists in first cleaning the scraps, so as to free them from all foreign substances, and then softening them for a time in water, to which is added some adhesive substance, such as glue or gelatine. After being sufficiently softened the scraps are laid upon tin plates of the proper size, having a rim all around, and arranged longitudinally and transversely, so as to make the strata nearly even, until the required thickness is obtained. A number of these plates are then placed one upon another and subjected to a hydraulic pressure, until the separate fragments are united into a nearly uniform mass. After these layers have dried sufficiently they are passed under a roller, so as to smooth them off and give to them the external appearance of the original leather.

MARKET PRICES OF FARM PRODUCTS.

Articles.	July.	Articles.	July.
NEW YORK.		BOSTON—Continued.	
Flour, State.....per bbl..	$5 40 to $6 65	Corn, yellow .....per bush..	$0 81 to $0 82
western .....do....	5 40 to 9 00	mixed .....do....	69 to 71
Wheat, No. 1 spring..per bush..	1 50 to 1 51	Oats.....do....	65 to 70
No. 2 spring .....do....	1 44 to 1 48	Rye .....do....	1 10 to 1 20
winter and amber western .....per bush..	1 48 to 1 57	Barley.....do....	
Corn, new western, mixed.do....	71½ to 72	Pork, mess.....per bbl..	16 00 to 16 50
old western, mixed..do....		prime .....do....	13 50 to 14 50
Rye .....do....	Nominal.	Beef, mess .....do....	12 00 to 14 00
Barley.....do....	Nominal.	extra mess.....do....	15 00 to 17 00
Oats, western.....do....	65 to 70	Lard.....per lb....	10 to 13
State .....do....		Butter, New York and Vermont.....per lb....	18 to 27
Hay, shipping qualities.per ton..	21 00 to — —	Canada .....do....	20 to 26
prime .....do....	24 00 to 29 00	western.....do....	10 to 23
Pork, mess .....per bbl..	15 00 to 15 75	Cheese, eastern factory ...do....	10 to 12½
prime mess.....do....	13 00 to 13 25	Ohio.....do....	8 to 12
Beef, mess.....do....	8 00 to 12 00	Hay, prime .....per ton..	30 00 to 32 00
extra .....do....	13 00 to 16 00	Wool, western.....per lb..	60 to 75
Lard, extra .....per lb..	9¼ to 11	combing and delaine fleeces.....per lb..	46 to 65
Butter, western.....do....	11 to 23	tub.....do	55 to 72
State .....do....	15 to 31	pulled.....do....	42½ to 62
Cheese, dairy .....do....	5 to 12	CHICAGO.	
factory .....do....	8 to 12½		
Cotton, ordinary .....do....	15 to 18⅜	Flour, winter, extras...per bbl..	6 75 to 8 50
middling.....do....	19⅞ to 22⅞	spring .....do....	5 50 to 7 00
Tobacco, sound lugs, L. G.do....	5¼ to 6¾	Wheat, No. 1 spring..per bush..	1 28¼ to 1 28½
sound lugs, H. G .do....	6¼ to 7½	No. 2 spring .....do....	1 26¾ to 1 27½
common le'f, L.G..do....	7 to 7½	No. 3 spring .....do....	1 18 to — —
common l'f, H.G..do....	7½ to 8½	Corn, No. 2.....do....	54½ to 54⅝
Wool, combing fleece.....do....	48½ to —	rejected .....do....	52 to 52½
extra pulled .....do....		no grade .....do....	
Texas, common to medium.....per lb..	30 to —	Oats, No. 2.....do....	48¾ to 49½
California, common..do....	39 to 40	rejected.....do....	46 to 47½
BOSTON.		Hay, timothy and clover, (on track) .....per ton..	14 00 to 15 00
		prairie.....do....	8 00 to 11 00
Flour, west'n superfine.per bbl..	5 00 to 5 25	Pork, mess.....per bbl..	14 50 to — —
extra .....do....	6 00 to 8 00	prime mess .....do....	12 00 to 13 50
choice .....do....	7 00 to 10 50		

Market prices of farm products—Continued.

Articles.	July.
CHICAGO—Continued.	
Beef, mess.....per bbl	$11 00 to $13 00
extra mess.....do....	14 00 to 14 50
Lard.....per lb..	10½ to —
Butter, firkin and tub ....do....	7½ to 19
extra .....do....	17 to 20
Cheese, New York factory .do....	10 to 11
western.....do....	9 to 10
western reserve...do....	.....
Wool, medium fleece.....do....	45 to 55
unwashed medium do....	33 to 42
tub .....do....	55 to 64
CINCINNATI.	
Flour, family .....per bbl..	6 35 to 6 60
extra .....do....	6 15 to 6 25
superfine .....do....	5 25 to 5 50
low grades.....do....	4 00 to 4 50
Wheat, No. 1 white...per bush..	.....
No. 2 white .....do....	.....
No. 1 red.....do....	1 35 to 1 38
No. 2 red.....do....	.....
Corn, No. 1.....do....	59 to —
new ear.....do....	55 to 56
Rye, No. 1 .....do....	98 to 1 00
No. 2 .....do...	93 to 95
rejected .....do...	.....
Barley, No. 1.....do....	.....
No. 1 State.....do....	.....
Oats, No. 1 mixed .....do....	55 to 57
No. 2 mixed .....do....	.....
Hay, tight-pressed.....per ton..	17 00 to 23 00
loose.....do....	19 00 to 30 00
Pork, mess.....per bbl..	15 00 to 15 25
prime mess.....do....	.....
Lard, prime steam .....per lb..	11 to —
Butter, choice Ohio.....do....	18 to 20
fair to good.....do....	14 to 15
Cheese, western reserve ..do....	9 to 10
factory.....do....	10 to 11
Cotton, ordinary.....do....	13⅜ to 18¼
middling .....do....	19½ to 21½
Tobacco, lugs, West Va...do....	4½ to 6½
lugs, Kentucky..do....	7½ to 8½
common to medium leaf, West Va ....per lb..	7½ to 10
common to medium leaf, Kentucky ...per lb..	10 to 16
Wool, tub-washed .....do....	55 to 58
fleece-washed .....do....	48 to 55
unwashed.....do....	34 to 40
pulled .....do....	45 to 47
ST. LOUIS.	
Flour, superfine .....per bbl..	4 20 to — —
extra .....do....	4 75 to 6 25
choice .....do....	7 00 to 7 75
Wheat, spring .....per bush..	1 05 to — —
winter No. 1 .....do....	1 24 to 1 40
winter No. 2 .....do....	1 22 to 1 25
winter No. 3 .....do....	1 15 to 1 20
Red ....do....	1 00 to 1 35

Articles.	July.
ST. LOUIS—Continued.	
Corn, mixed .....per bush..	0$ 50 to $0 54
yellow.....do....	50½ to 51
Hay .....per ton..	15 00 to 23 00
Pork, mess.....per bbl..	14 00 to 16 00
Lard, tierce.....per lb..	11½ to — —
keg .....do....	11½ to 11¾
Butter, choice .....do....	18 to 20
fair to medium....do....	12 to 16
Cheese, factory .....do....	12 to 13½
Cotton, middling.....do....	17½ to 19
Tobacco, sound lug....per cwt..	5 50 to 7 00
common leaf ....do....	6 75 to 7 75
medium leaf.....do....	7 75 to 8 50
Wool, tub-washed .....per lb..	57 to 64
fleece-washed .....do....	45 to 55
combing .....do....	41 to 43
pulled .....do....	43 to 45
NEW ORLEANS.	
Flour, superfine.....per bbl..	5 00 to 5 25
Extras, (according to grade) .....per bbl..	5 75 to 9 75
Corn, mixed.....per bush..	70 to 75
yellow.....do....	71 to 72
white .....do....	74 to 75
Oats, choice .....do....	63 to 65
Hay, choice.....per ton..	27 00 to 28 00
prime .....do....	25 00 to 26 00
Pork, mess.....per bbl..	16 12½ to 16 75
Lard, tierce .....per lb..	10½ to 11
keg ..... do....	11½ to 11¾
Butter, choice western....do....	20 to 23
choice northern...do....	32 to 35
common northern.do...	— to —
Cheese, choice factory ....do....	12½ to 13
western reserve..do....	11 to 12
Cotton, ordinary.....do....	13⅜ to 18½
low middling.....do....	20 to 20½
middling .....do....	21 to —
Tobacco, lugs .....do....	6 to 7
low leaf.....do....	7 to 7½
medium leaf ....do....	7½ to 8
SAN FRANCISCO.	
Flour, superfine.....per bbl..	6 00 to 6 25
extras .....do....	6 50 to 7 25
Wheat, State.....per cental..	2 27½ to 2 40
Oregon .....do....	— — to — —
Corn, white .....do....	2 00 to 2 25
yellow.....do....	2 00 to 2 25
Hay, State.....per ton..	15 00 to 21 00
Pork, mess.....per bbl..	26 00 to — —
prime .....do....	— — to — —
Beef, mess.....do....	— — to — —
Lard.....per lb..	— to —
Butter, State .....do....	27 to 31
Oregon .....do....	20 to 25
overland.....do....	— to —
Cheese .....do....	— to —
Wool, choice.....do....	35 to 42
inferior & medium .do....	25 to 30

METEOROLOGY.

JUNE, 1871.

[COMPILED IN THE DEPARTMENT OF AGRICULTURE FROM REPORTS MADE BY OBSERVERS OF THE SMITHSONIAN INSTITUTION.]

Table showing the highest and lowest range of the thermometer, (with dates prefixed,) the mean temperature, and amount of rain-fall, (in inches and tenths,) for June, 1871, as reported by the observers at the stations named. Observations daily at 7 a. m. and 2 and 9 p. m.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
MAINE.								
				Deg.		*Deg.*	*Deg.*	*In.*
Orono	Penobscot	M. C. Fernald	2	83	21	47	62.0	2.58
West Waterville	Kennebec	B. F. Wilbur	3	91	24	52	65.8	1.15
Gardiner	do	R. H. Gardiner	3	84	1, 24	53	63.7	1.58
Lisbon	Androscoggin.	Asa P. Moore	3	88	1, 18	52	63.9	2.45
Standish	Cumberland	John P. Moulton	3	92	24	51	64.4	3.02
Norway	Oxford	Howard D. Smith	3	91	24	51	65.2	1.85
Cornish	York	Silas West	3	92	19	51	64.4	2.00
Cornishville	do	G. W. Guptill	3	93	19	52	66.7	3.10
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	3	92	16, 30	46	66.5	1.62
Whitefield	do	L. D. Kidder	3	92	17	46	62.2	1.82
Tamworth	Carroll	Alfred Brewster	3	93	24, 30	47	65.5	1.76
Contoocookville	Merrimack	E. D. Couch	3	92	18	53	67.3	3.20
Amoskeag	Hillsboro	Alfred Colby	3	95	10, 22	45	60.9	3.15
VERMONT.								
Lunenburg	Essex	H. A. Cutting	3	90	10, 18	50	66.0	2.13
Craftsbury	Orleans	Rev. E. P. Wild	3	88	9	43	60.9	1.94
South Troy	do	James C. Kennedy	3	90	22	51	65.9	1.90
East Bethel	Orange	Charles S. Paine	3	93	10, 30	42	63.6	1.60
Woodstock	Windsor	Doton & Miller	3	87	22	46	62.0	1.54
Norwich	do	Samuel B. Phelps	3	92	10, 30	47	66.1	4.10
West Charlotte	Chittenden	Miss M. E. Wing	2	93	22	46	68.4	2.81
Panton	Addison	D. C. and M. E. Barto	2	90	13, 24	54	67.1	1.93
Castleton	Rutland	Rev. R. G. Williams	3	89	17	49	66.1	1.29
MASSACHUSETTS.								
Kingston	Plymouth	G. S. Newcomb	3	92	19	50	65.4	4.74
Lawrence	Essex	John Fallon	3	94	18, 19	52	66.7	5.21
Milton	Norfolk	Rev. A. K. Teele	3	94	10	53	65.2	4.35
North Billerica	Middlesex	Rev. E. & W. W. Nason	3	92	18	50	66.4	.....
Worcester	Worcester	Merrick Bemis, M. D.	3	89	17, 19, 24	54	66.2	5.39
Lunenburg	do	Geo. A. Cunningham	3	93	15, 18	52	66.0	6.20
Mendon	do	John G. Metcalf, M. D.	3	88	1, 18, 19	53	69.2	3.10
Amherst	Hampshire	Prof. E. S. Snell	3	88	10	52	65.4	6.58
Richmond	Berkshire	William Bacon	4	90	9	44	66.5	6.80
Williams College	do	Prof. A. Hopkins	3	88	22	48	64.3	4.85
Hinsdale	do	Rev. E. Dewhurst	3	88	9, 14, 16, 17, 18, 22, 24, 29, 30	50	62.9	3.50
RHODE ISLAND.								
Newport	Newport	William A. Barber	4	89	1	54	66.4	4.26

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
CONNECTICUT.								
				Deg.		*Deg.*	*Deg.*	*In.*
Columbia	Tolland	William H. Yeomans	3	94	19, 22	53	65.8	4.99
Middletown	Middlesex	H. D. A. Ward	3	90	17	52	65.8	4.24
Southington	Hartford	Luman Andrews	3	87	19	53	65.2	5.11
Round Hill	Fairfield	Rev. W. P. Alcott	3	87	30	55	67.1	6.00
NEW YORK.								
Moriches	Suffolk	E. A. Smith & daugh'r.	4	87	1	59	69.8	3.79
South Hartford	Washington	G. M. Ingalsbe	3	87	16	50	69.5	3.25
North Argyle	do	G. M. Hunt	3	87	17, 22	53	66.8	3.47
Garrison's	Putnam	Thomas B. Arden	3	92	15, 30	55	68.0	5.29
Throg's Neck	West Chester.	Miss E. Morris	3, 4, 20	89	18	52	71.0	.....
White Plains	do	Prof. O. R. Willis & drs	3	85	17	56	64.5	.....
Cooper Union	New York	Prof. O. W. Morris	4	87	30	59	69.3	8.02
Brooklyn	Kings	Isaac P. Mailler	3	87	16	60	69.6	6.45
Flatbush	do	Rev. Eli T. Mack	3, 20	89	24, 25	55	69.6	5.81
Glasco	Ulster	D. B. Hendricks	3	94	10	46	66.8	6.35
Amsterdam	Montgomery	J. W. Bussing	2	87	24	55	68.6	6.45
Middleburg	Schoharie	Rev. Sanford W. Roe	3	93	10, 17	50	67.3	6.10
Cooperstown	Otsego	G. Pomeroy Keese	3	88	17	43	64.5	5.25
Gouverneur	St. Lawrence	C. H. Russell	6	88	16	42	62.3	1.58
Canton	do	Leslie A. Lee	3	93	16	49	65.9	.....
North Hammond	do	C. A. Wooster	4	98	17	54	67.1	1.88
Lowville	Lewis	A. Judson Barrett	2, 3	88	22	41	60.0	1.94
Cazenovia	Madison	Prof. William Soule	3	90	9	47	64.6	.....
Oneida	do	S. Spooner, M. D	2, 6	91	16	46	64.0	8.73
Depauville	Jefferson	Henry Haas	4	84	16, 17	48	61.8	2.80
Oswego	Oswego	William S. Malcolm	27	83	16	50	63.4	2.28
Palermo	do	E. B. Bartlett	2, 6	90	9	46	65.7	2.10
North Volney	do	J. M. Patrick	6	93	16	51	66.8	.....
Waterburg	Tompkins	David Trowbridge	6	89	16	42	65.3	.....
Nichols	Tioga	Robert Howell	1, 6	89	17	42	66.2	.....
Newark Valley	do	Rev. Samuel Johnson	2, 6	89	16, 30	46	65.8	3.60
Rochester	Monroe	G. P. Hachenberg, M.D	3, 6	89	16	52	69.5	4.20
Little Genesee	Allegany	Daniel Edwards	2, 6	86	30	36	64.3	3.62
Angelica	do	C. P. Arnold	2	88	17	38	63.0	2.57
Carlton	Orleans	M. P. Godfrey	27	85	17	48	63.8	1.81
Lockport	Niagara	B. Wheaton Clarke	6	90	13	50	64.7	3.07
Buffalo	Erie	William Ives	1	93	29	49	66.5	3.65
Jamestown	Chautauqua	Samuel H. Albro	6	86	16	46	65.5	3.30
NEW JERSEY.								
Jersey City	Hudson	Thomas J. Howard, jr.	3	89	24	59	70.6	7.47
Newark	Essex	W. A. Whitehead	3	86	10, 17, 30	54	68.2	7.11
Trenton	Mercer	E. R. Cook	4	90	15, 17, 30	60	73.6	5.87
Rio Grande	Cape May	Mrs. J. R. Palmer	3	89	25	52	67.7	4.63
Moorestown	Burlington	Thomas J. Beans	4	89	30	58	69.9	6.11
New Germantown	Hunterdon	A. B. Noll	5, 6	85	15	51	68.8	9.31
Readington	do	John Fleming	3, 4	90	16	52	69.5	.....
Greenwich	Cumberland	Miss R. C. Sheppard	7	85	16, 26, 30	59	71.3	3.53
Vineland	do	John Ingram, M.D	3	96	25, 30	57	73.5	5.03
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	5	90	9	43	60.3	2.15
Hamlinton	Wayne	James D. Stocker	5, 28	88	9, 16	48	67.9	2.50
Dyberry	do	Theodore Day	2	87	30	45	64.5	2.51
Fallsington	Bucks	Ebenezer Hance	3, 4	89	15	59	71.0	5.00
Philadelphia	Philadelphia	Prof. J. A. Kirkpatrick	3	90	25	60	73.0	4.51
Germantown	do	Thomas Meehan	3	91	16	55	71.4	.....
Do	do	Ernest Turner	3	88	16, 30	59	67.2	.....
Horsham	Montgomery	Miss Anna Spencer	3	86	15	56	68.7	8.33
Plymouth Meeting	do	Marcus H. Corson	3	88	16	57	70.3	8.06
Egypt	Lehigh	Edward Kohler	3, 5	91	30	46	69.6	.....
Factoryville	Luzerne	Rodman Sisson	2, 6	87	30	49	66.3	5.20
Reading	Berks	J. Heyl Raser	3	92	30	57	71.3	6.24
West Chester	Chester	George Martin, M. D	4	90	29	61	73.5	3.85
Parkersville	do	F. Darlington, M. D	3	90	17	59	71.9	5.00
Ephrata	Lancaster	W. H. Spera	3	90	12	53	71.0	5.49
Do	do	W. F. Madlem	3	90	12, 16	53	71.0	4.59
Harrisburg	Dauphin	Samuel A. Black	4	94	12	60	74.4	5.94
Carlisle	Cumberland	William H. Cook, M. D	6	93	30	58	71.9	3.65

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
PENN.—Cont'd.				Deg.		Deg.	Deg.	In.
Fountain Dale	Adams	S. C. Walker	20	87	12, 29	59	70. 7	2. 96
York S. Springs	do	J. H. Marsden, M. D.	7	92	29	55	71. 2	3. 65
Tioga	Tioga	E. T. Bentley	19	90	17, 30	36	62. 1	2 80
Grampian Hills	Clearfield	Elisha Fenton	5	90	29	48	66. 2	3. 16
Johnstown	Cambria	David Peelor	4	88	30	44	68. 6	4. 05
Franklin	Venango	Rev. M. A. Tolman	2	94	30	45	67. 5	3. 53
Greensburg	Westmereland	J. M. L. Stump	4	87	29	52	71. 4	5. 25
Pittsburg	Allegheny	George Albree	6	88	30	50	70 0	4. 10
Connellsville	Fayette	John Taylor	5, 6	94	30	52	72. 4	.....
Greenville	Mercer	D. B. Packard	6	87	30	48	66. 9	5. 72
Newcastle	Lawrence	E. M. McConnell	2	88	30	43	75. 5	4. 30
Canonsburg	Washington	Rev. Wm. Smith, D. D.	1, 2, 3, 6	86	30	47	72. 8*	3. 59
DELAWARE.								
Dover	Kent	J. H. Bateman	5	92	2, 25	62	74. 4	1. 20
Milford	do	Robert H. Gilman	4	89	25	55	74. 0	1. 80
MARYLAND.								
Woodlawn	Cecil	J. O. McCormick	3, 5	88	10, 16, 17, 25, 30	60	71. 8	4. 10
Fallston	Harford	George G. Curtis	3, 5, 7, 23	87	12, 30	60	72. 4	3. 59
Annapolis	Anne Arundel	William R. Goodman	3	90	12	63	75. 6	5. 20
Woodstock College	Baltimore	Rev. A. X. Valente	3, 4	86	30	57	70. 9	2. 25
Sam's Creek	Carroll	F. J. Devilbiss	5	85	12	57	70. 1	1. 49
Mt. St. Mary's	Frederick	Prof. C. H. Jourdan	3	87	30	58	70. 9	2. 39
Cumberland	Alleghany	E. T. Shriver	.....	.....	16	57	69. 0	.....
DIST. COLUMBIA.								
Washington	Washington	Smithsonian Instit'n	7	85	30	63	74. 3	2. 99
VIRGINIA.								
Johnsontown	Northampton	C. R. Moore	4	89	12	62	73. 0	4. 15
Capeville	do	Emma C. Townsend	24, 28	92	12	66	77. 9	.....
Hampton	Elizab'th City.	J. M. Sherman	20, 24	94	13	65	75. 7	3. 99
Comorn	King George	E. T. Tayloe	24	89	12, 30	64	75. 4	4. 57
Mt. Solon	Augusta	Jas. T. Clarke, M. D	24	88	16	54	71. 0	2. 24
Vienna	Fairfax	H. C. Williams	28	90	16, 25, 30	62	72. 7	3. 10
Fairfax C. H.	do	Miss Lillie Thrift	25	89	30	60	69. 3	2. 51
Accotink	do	C. Gillingham	24	90	30	60	74. 7	2. 05
Near Waterford	Loudon	Mrs. S. E. Chamberlin	5, 28	92	12	56	74. 9	1. 40
Piedmont	Fauquier	F. Williams	20, 24	91	12	55	72. 2	3. 50
Markham Station	do	D. Payne	28	88	12	60	72. 0	.....
Piedmont Station	do	William A. Martin	3, 21, 24, 28	86	12	55	71. 4	3. 75
Keswick Station	Albemarle	Capt. D. B. Horn	4	95	16	60	77. 0	.....
Lexington	Rockbridge	Prof. J. L. Campbell	24	89	16	56	73. 0	2. 57
Lynchburg	Bedford	C. I. Meriwether	24, 28	86	16	61	75. 2	.....
Near Wytheville	Wythe	Rev. J. A. Brown	23	86	12	59	71. 7	3. 20
WEST VIRGINIA.								
Weston	Lewis	Benjamin Owens	1	92	30	56	72. 9	.....
NORTH CAROLINA.								
Oxford	Granville	W. R. Hicks, M. D	20, 23, 24	90	12, 13	64	77. 0	2. 60
Fayetteville	Cumberland	G. W. Lawrence	28	92	13, 17	66	78. 7	2. 00
Albemarle	Stanley	F. J. Kron	25	94	13	54	76. 0	3. 10
Statesville	Iredell	T. A. Alison	23, 24, 28	92	12	52	75. 0	1. 75
Asheville	Buncombe	E. J. Aston	20	85	13	56	71. 8	.....
Do	do	J. T. E. Hardy, M. D	22, 23	80	13	54	70. 5	4. 10
SOUTH CAROLINA.								
Aiken	Barnwell	John H. Cornish	15, 19, 23	90	1, 2, 4, 12, 14, 16	71	80. 4	7. 09
Gowdeysville	Union	Charles Petty	20, 22	90	12	69	79. 6	3. 97

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
GEORGIA.				Deg.		Deg.	Deg.	In.
Berne	Camden	H. L. Hillyer	29	90	4, 16, 18, 21	71	77.8	6.40
St. Mary's	do	Ebenezer Barker	29	92	5	72	80.4	15.85
Quitman	Brooks	J. Q. Cutler	18, 26, 27	93	1	73	80.5	11.72
Macon	Bibb	S. P. Sanford	15, 21, 22, 25, 28, 29, 30	94	1	70	81.4	5.77
Atlanta	Fulton	Charles Deckner	30	91	12	64	77.4	3.48
ALABAMA.								
Huntsville	Madison	E. L. Antony, M. D.	21, 27, 28	86	1, 13	70	78.4	5.45
Carlowville	Dallas	H. L. Alson	28	96	2	70	80.2	9.39
Selma	do	Dr. Fahs and Miss R. B. Deans.	28	95	16	68	81.1	7.35
Moulton	Lawrence	Thos. M. Peters	20, 26, 27	86	13	62	76.6	4.53
Greene Springs	Hale	H. Tutwiler, LL. D	28	94	14	65	78.0	4.43
Coatopa	Sumter	S. K. Jennings, M. D	21, 28	92	14	66	78.5	6.40
FLORIDA.								
Near Port Orange	Volusia	S. W. Chamberlin	13	93	19	70	78.8	7.22
New Smyrna	do	E. K. Lowd	12, 13	92	18	75	81.4	.....
Jacksonville	Duvall	A. S. Baldwin, M. D	29	95	6, 26	72	81.2	16.75
Pilatka	Putnam	Gen. G. D. Robinson	18	98	20	71	81.8	12.79
TEXAS.								
Houston	Harris	Miss E. H. Baxter	18	101	9	74	83.9	.....
Clear Creek	Galveston	George N. Leoni	29	102	10, 11	74	81.9	8.72
Oakland	Colorado	F. Simpson	29	101	12	71	83.4	1.60
Bluff	Fayette	Joseph Fietsam	29	96	8	72	80.9	3.32
Victoria	Victoria	L. D. Heaton	29	106	7, 9	74	85.9	2.40
Clinton	DeWitt	A. C. White	28, 29	98	8	73	82.9	1.00
Austin	Travis	J. Van Nostrand	29	100	8, 18	72	83.1	0.55
San Antonio	Bexar	Fred. Pettersin	29	104	9	71	84.8	0.32
LOUISIANA.								
New Orleans	Orleans	Robert W. Foster	28	94	2, 13	69	80.0	6.40
Ponchatoula	Livingston	H. C. Collins	27, 28	94	13	74	82.7	12.80
MISSISSIPPI.								
Marion Station	Lauderdale	Thos W. Storer, M. D	28	98	3, 5, 12, 13	70	80.6	6.20
Philadelphia	Neshoba	L. A. Bowden	29, 30	90	2, 8, 11, 13, 19, 20, 23	70	77.6	4.20
Near Brookhaven	Lawrence	Mrs. W. E. Keenan	28	95	2	69	79.0	7.70
Holly Springs	Marshall	Thomas B. Coleman	27	94	30	60	78.0	3.80
ARKANSAS.								
Helena	Phillips	C. F. Russell	28	96	12	63	80.8	.....
Clarksville	Johnson	E. Greene	26, 27	97	8, 12	71	80.6	8.41
Washington	Hempstead	Charles White	23, 28	90	1, 8, 13, 14, 15	72	80.2	0.75
Mineral Springs	do	Harmon Bishop	21, 27, 28	98	13	64	80.8	1.23
TENNESSEE.								
Elizabethton	Carter	C. H. Lewis	5, 24	91	13	50	74.3	4.25
Tusculum College	Greene	S. S. and Rev. W. S. Doak.	6	92	8	52	77.0	1.30
Knoxville	Knox	Prof. J. K. Payne	23	89	13	58	75.4	4.46
Lookout Mountain	Hamilton	Rev. C. F. P. Bancroft	14, 19, 28	87	1	64	76.5	.....
Clearmont	Warren	T. P. Wright	25	87	13	60	73.5	5.81
Austin	Wilson	P. B. Calhoun	25, 26, 27	90	13	62	74.3	6.69
Clarksville	Montgomery	Prof. W. M. Stewart	5, 27	85	30	61	74.5	4.01

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
TENN.—Cont'd.				*Deg.*		*Deg.*	*Deg.*	*In.*
Trenton	Gibson	W. T. Grigsby	20	93	30	60	78.6	2.80
La Grange	Fayette	W. E. Franklin, M. D.	23	94	30	65	78.7	2.80
KENTUCKY.								
Pine Grove	Clark	Sam'l D. Martin, M. D.	23, 27	88	29, 30	58	73.2	4.64
Danville	Boyle	O. Beatty	4, 27	92	12, 29	62	76.6	3.51
Shelby City	....do	Howard Shriver	5	90	12, 13	64	75.5	2.71
Near Louisville	Jefferson	Mrs. Laurence Young.	27	94	29, 30	54	75.2	3.86
OHIO.								
Salem	Columbiana	J. E. Pollock	2	97	29	48	69.2	4.69
Steubenville	Jefferson	Joseph B. Doyle	20	88	30	53	74.0	2.93
Painesville	Lake	E. J. Ferris	6	85	30	48	66.5	6.00
Milnersville	Guernsey	Rev. D. Thompson	1	87	12, 13, 14, 30	50		3.85
Cleveland	Cuyahoga	Mr. & Mrs. G. A. Hyde	2, 6	89	16, 29	48	67.1	3.58
Adams' Mills	Muskingum	Charles A. Stilwell	1	88	14, 21	60	68.3	.....
Pennsville	Morgan	J. P. King	1, 5	92	30	56	73.3	2.62
Gallipolis	Gallia	A. P. Rogers	23	90	30	50	74.3	3.69
Sandusky	Erie	Thomas Neill	2	89	29	56	69.7	3.77
Carson	Huron	Mrs. M. M. Marsh	2	90	29	54	67.7	5.75
North Fairfield	....do	O. Burrass	1	88	29, 30	54	69.0	6.25
Westerville	Franklin	Prof. John Haywood	1	89	29	53	70.1	4.47
North Bass Island	Ottawa	Geo. R. Morton, M. D.	6	90	29	54	69.9	3.15
Marion	Marion	H. A. True, M. D.	1	89	29	51	69.5	3.26
Hillsboro	Highland	J. McD. Mathews	23	85	30	55	70.5	2.67
Bowling Green	Wood	John Clarke	19	96	29	52	72.9	4.28
Kenton	Hardin	C. H. Smith, M. D	6	95	30	59	78.7	4.20
Bellefontaine	Logan	William Barringer	1	91	29	50	70.5	3.03
Urbana University	Champaign	M. G. Williams	23	90	29	52	71.4	3.65
Bethel	Clermont	G. W. Crane	23	91	29	55	73.2	1.75
Carthagena	Mercer	Prof. W. R. Mueller	23	91	29	51	71.4	3.00
Jacksonburg	Butler	J. B. Owsley, M. D	1, 5, 6	88	30	52	72.1	5.10
Oxford	....do	R. W. McFarland	23	95	29	56	74.4	6.08
Mount Auburn Ins.	Hamilton	Prof. I. H. White	1, 23	89	29	60	76.0	1.81
Cumminsville	....do	J. H. Shields	5	92	30	55	72.5	2.30
Cincinnati	....do	G. W. Harper	1	96	29, 30	56	74.4	2.02
Do	....do	R. C. Phillips	24	92	29, 30	60	78.2	2.15
College Hill	....do	J. W. Hammitt	6, 23	92	9, 12, 16	62	81.2	3.63
MICHIGAN.								
Detroit	Wayne	F. W. Higgins	1, 27	92	29	51	68.8	6.26
Monroe City	Monroe	Miss H. I. Whelpley	6, 19	92	29	55	72.3	1.00
Ann Arbor	Washtenaw	Mrs. N. H. Winchell	1	88	29	48	67.9	3.37
Macon	Lenawee	David Howell	27	94	29	49	69.4	6.10
Alpena	Alpena	J. W. Paxton	3, 4	72	9	46	59.2	1.16
State Agr. College	Ingham	Prof. R. C. Kedzie	2	98	13, 15	44	68.2	2.93
Olivet College	Eaton	Prof. A. F. Kemp	1, 2	91	29	50	68.7	4.40
Litchfield	Hillsdale	R. Bullard	1, 4, 19	87	29	48	68.0	3.53
Cold Water	Branch	N. L. Southworth	1	94	29	42	66.5	2.75
Grand Rapids	Kent	E. S. Holmes, D. D. S	1	98	28, 29	49	69.8	3.36
Northport	Leelenaw	Rev. Geo. N. Smith	1	86	8	44	61.5	1.69
Benzonia	Benzie	William Wilson	1, 5	87	8	44	63.5	0.80
Copper Falls	Keweenaw	S. H. Whittlesey, M. D.	1	87	8, 9	39	58.0	1.40
Ontonagon	Ontonagon	Edwin Ellis, M.D	9	78	8	44	57.0	1.20
INDIANA.								
Fort Wayne	Allen	R. S. Robertson	1	92	29	50	71.8	2.60
Rising Sun	Ohio	Thomas E. Alden	27	93	30	59	72.6	.....
Vevay	Switzerland	Chas. G. Boerner	23	92	29	59	74.9	2.30
Mt. Carmel	Franklin	J. A. Applegate and daughter.	1, 23	94	29	57	78.2	5.55
Spiceland	Henry	William Dawson	23	95	29	55	74.1	3.25
Laconia	Harrison	Adam Crozier	27	90	29	58	74.8	1.43
Beech Grove	Rush	William S. Clark	26	88	30	48	71.0	3.80
Knightstown	....do	D. Deem	23	94	29	58	74.0	4.49
Bloomington	Monroe	Mallow & Kilpatrick	23	91	29	56	74.0	1.29
Near La Porte	La Porte	F. J. Andrew	23	86	29	50	70.4	6.05
Merom	Sullivan	Thomas Holmes	23	94	29	57	77.8	0.70
New Harmony	Posey	John Chappellsmith	23	94	29	59	79.0	0.82

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
ILLINOIS.								
				Deg.		Deg.	Deg.	In.
Chicago	Cook	J. G. Langguth, jr	23	88	11	54	72.0	5.87
Near Chicago	do	Samuel Brookes	23	90	24	42	69.7	.....
Evanston	do	Prof. Oliver Marcy	1	81	30	55	67.1	4.06
Marengo	McHenry	J. W. James	1	90	29	46	66.3	5.17
Mattoon	Coles	A. W. Puffer	23	99	30	55	76.3	9.37
Aurora	Kane	A. Spaulding, M. D	1	90	29	48	69.5	5.25
Louisville	Clay	D. H. Chase, M. D	23	96	29	56	77.7	2.60
Decatur	Macon	Timothy Dudley	22, 23	94	29	48	73.1	1.90
Pana	Christian	Thos. Finley, M.D	23	93	29	60	75.8	1.70
Rochelle	Ogle	Daniel Carey	1	94	8, 28	54	68.0	.....
Wyanet	Bureau	E. S. & Miss Phelps	1, 2	93	29, 30	47	72.2	5.90
Tiskilwa	do	Verry Aldrich	5	96	30	54	72.7	.....
Hennepin	Putnam	Smiley Shepherd	1	96	29, 30	45	70.0	.....
Do	do	Ethan Osborn	1	96	30	52	73.4	4.70
Peoria	Peoria	Fred. Brendel	4, 5, 22	92	12, 29	57	75.2	3.47
Havana	Mason	Joseph Cochrane	1, 22, 23	98	29	56	74.8	3.00
Waterloo	Monroe	Chas. Jozefè	23	98	29	54	75.5	2.30
Dubois	Washington	Wm. C. Spencer	27	95	13, 29	62	77.4	2.14
Galesburg	Knox	Prof. W. Livingston	1, 5	90	29, 30	58	73.0	3.41
Manchester	Scott	Dr. J. & C. W. Grant	5	93	8	57	75.0	2.00
Mt. Sterling	Brown	Rev. A. Duncan	1	92	30	57	78.8	3.95
Andalusia	Rock Island	M. B. Bowman	4, 5	90	29	42	71.8	1.65
Oquawka	Henderson	R. N. Patterson	1	97	30	59	77.5	2.26
Augusta	Hancock	S. B. Mead, M. D	4	92	29	61	75.5	4.70
Warsaw	do	B. Whitaker	1	92	30	57	74.4	6.91
WISCONSIN.								
Sturgeon Bay	Door	Rufus M. Wright	1	87	8, 15	44	63.5	1.55
Hingham	Sheboygan	John de Lyser	1, 4	87	29	50	68.1	4.00
Milwaukee	Milwaukee	I. A. Lapham, LL. D	1	85	29	45	65.1	3.03
Geneva	Walworth	W. H. Whiting	1	96	15	49	67.8	6.98
Embarrass	Waupaca	E. Everett Breed	1	93	29	45	67.1	3.77
Rocky Run	Columbia	W. W. Curtis	1	92	30	53	68.0	6.38
Edgerton	Rock	H. J. Shints	1	98	28	54	70.6	4.40
Baraboo	Sauk	M. C. Waite	1	94	8	52	70.1	5.38
New Lisbon	Juneau	J. L. Dungan	1	99	29	50	69.0	.....
Bayfield	Bayfield	Andrew Tate	27	86	23	44	64.0	.....
MINNESOTA.								
St. Paul	Ramsey	Rev. A. B. Paterson	4	92	15	55	68.0	4.30
Minneapolis	Hennepin	William Cheney	4	91	15	50	67.9	3.11
Sibley	Sibley	C. W. & C. E. Woodbury	4	90	15	51	68.3	1.87
Litchfield	Meeker	H. L. Wadsworth	4	90	7	50	66.3	3.00
New Ulm	Brown	Charles Roos	4	92	8	52	70.1	1.35
IOWA.								
Dubuque	Dubuque	Asa Horr, M. D	1	95	29	55	72.2	4.47
Monticello	Jones	Rufus P. Smith	4	98	10, 12, 21	57	72.5	4.57
Durant	Cedar	F. A. Ross	1	98	7, 28	56	69.5	4.50
Bowen's Prairie	Muscatine	Samuel Woodworth	1, 4	98	8, 9	54	70.6	2.75
Fort Madison	Lee	Daniel McCready	5	97	28	52	75.7	3.44
Guttenberg	Clayton	J. P. Dickerson	4	98	{ 14, 15, 21, 28 }	52	68.1	.....
Independence	Buchanan	George Warne, M. D	4	98	28	55	73.2	2.35
Near Independence	do	Mrs. D. B. Wheaton	18	94	28	53	70.5	5.00
Rockford	Floyd	H. Wadey	5	93	8, 15	54	69.3	.....
Iowa Falls	Hardin	Nathan Townsend	5	90	10	60	73.3	3.75
Ames	Story	Ernest Adams	22	96	28	56	73.7	2.50
Algona	Kossuth	James H. Warren	5	96	19	56	71.0	.....
Boonesboro	Boone	E. Babcock	18	92	29	50	69.7	.....
Afton	Union	M. V. Ashby	26	92	28	52	70.2	3.60
Fontanelle	Adair	A. F. Bryant	26	99	11	59	75.5	1.50
Grant City	Sac	Mr. and Mrs. E. Miller	18	102	14, 29	56	75.4	1.00
Sac City	do	D. B. Nelson	3, 4, 18	92	7	52	56.6	3.80
Logan	Harrison	Jacob T. Stern	22, 26	94	12, 15	55	72.2	1.00
Council Bluffs	Pottawatomie	Benjamin Talbot	22	94	28	58	74.7	2.36
MISSOURI.								
St. Louis University	St. Louis	Rev. F. H. Stuntebeck	23	95	29, 30	61	79.1	3.09
Allenton	do	A. Fendler, M. D	22, 23	100	30	51	76.7	1.19

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
MISSOURI—Cont'd.								
				Deg.		*Deg.*	*Deg.*	*In.*
Hematite	Jefferson	John M. Smith	22	99	30	50	79.3	1.67
Hannibal	Marion	F. J. Hearne	18, 26	91	15, 30	60	76.0	4.00
Rolla	Phelps	Homer Ruggles	22, 23	97	30	47	75.0	2.24
Jefferson City	Cole	Nicolas de Wyl	10, 25	92	14	63	77.0	.....
North Springfield	Greene	R. H. McCord	21, 22, 26	90	29	60	75.8	4.83
Cave Spring	...do	Dr. T. W. Coltrane	26	93	29	60	77.3	.....
Kansas City	Jackson	S. W. Salisbury	26	95	15	62	77.0	8.93
Corning	Holt	Horace Martin	26	98	14	58	76.2	2.79
KANSAS.								
Atchison	Atchison	Dr. H. B. & Miss Horn	26	97	29	62	77.8	3.60
Williamstown	Jefferson	John M. Cotton	26	103	29	60	79.8	5.97
Leavenworth	Leavenworth	Dr. J. Stayman	26	97	29	57	76.6	6.45
Williamsburg	Franklin	D. Fogle	26	95	28	61	77.2	3.45
Paola	Miami	L. D. Walrad	22	93	29	63	76.9	8.76
Holton	Jackson	James Watters, M. D	26	102	28	60	80.0	4.75
Le Roy	Coffey	J. G. Shoemaker	20	100	28, 30	67	80.9	3.66
State Agr'l College	Riley	Prof. B. F. Mudge	26	100	15, 20	63	77.5	2.60
Council Grove	Morris	A. Woodworth, M. D	26	100	28	58	78.8	5.20
Douglass	Butler	W. M. Lamb, M. D	26	98	29	62	78.4	2.75
NEBRASKA.								
Omaha Agency	Blackbird	Rev. Wm. Hamilton	11	98	21	63	77.5	0.50
De Soto	Washington	Charles Seltz	22	98	28	59	75.8	3.30
Bellevue	Sarpy	Mrs. E. E. Caldwell	22, 26	99	28	57	76.6	2.80
Nebraska City	Otoe	Prof. P. Zahner	22, 26	96	14	61	76.2	2.50
Emerson	...do	William Dunn	22, 26	98	28, 29	58	77.7	2.87
Newcastle	Dixon	Louis H. Smith	17	102	2	48	74.4	.....
Santee Agency	L'Eau qui Court	George T. Truman	3, 4	95	28	58	74.7	4.05
CALIFORNIA.								
Monterey	Monterey	C. A. Canfield, M. D	6	89	3, 4	41	60.1	0.62
Mendocino	Mendocino	A. W. Thornton, M. D	25	79	25, 26	51	59.0	.....
Taylorsville	Plumas	Mary E P. Ames	16	99	6	48	72.0	.....
MONTANA TER.								
Deer Lodge City	Deer Lodge	Granville Stuart	28	90	3	31	63.8	1.07
Missoula	Missoula	Jas. M. Minnesinger	12	94	3	42	68.7	0.51
COLORADO TER.								
Denver	Arapahoe	Byers & Sopris	11	97	6	56	72.0	0.05
Golden City	Jefferson	G. W. Davies & J. Hall	18	94	22	57	76.0	0.70
WYOMING TER.								
Laramie City	Albany	D. J. Pierce	19	92	4	46	66.0	.....

NOTES OF THE WEATHER.

JUNE, 1871.

Mt. Desert, Me.—Fires in forests 1st to 13th; frost 22d; dry spring and June.

West Waterville, Me.—No entire cloudy, one entire clear day; month dry.

Gardiner, Me.—Cool, dry June. Mean heat 0.74° below average of thirty-five years, (63.81°.) Moisture of past six months 17.93 inches; in 1870, 23.89 inches.

Cornish, Me.—Average June heat for forty years 61.75°; this year 66.72°.

Tamworth, N. H.—Frosts 22d, 30th; month cool and very dry.

Contoocookville, N. H.—First good rain in six weeks 19th; clover blossoms 20th.

Amoskeag, N. H.—June calm; little thunder and lightning; frosts 10th, 22d.

Craftsbury, Vt.—Thunder-showers 3d, 13th; light frost 22d, sharp 30th.

Woodstock, Vt.—Slight frosts 10th, 17th, 23d, 30th; month dry; springs low.

West Charlotte, Vt.—Auroras 7th, 9th, 17th, 30th; very bright 4th, 8th, 23d, 24th; haying began 30th; getting very dry; crops suffering.

Kingston, Mass.—Distressing drought till 12th; hail 16th; aurora 17th.

Lunenburg, Mass.—Thunder-shower 11th, (was a tornado in neighboring towns.) June mean temperature for 1870, 71.01°; average for thirty-one years 66.24°.

Southington, Conn.—Rain on ten days; all day on 15th and 18th.

Moriches, N. Y.—Save a few days in May, cool weather to 30th.

Garrison's, N. Y.—A cool and rather wet month.

Brooklyn, N. Y.—Earthquake at 10 p. m. 19th; heavy rain; fine June.

New York City.—Earthquake felt on Staten and Long Islands at 10 p. m. of 19th, preceded by a rumbling sound, followed by tremulous motion.

North Hammond, N. Y.—Light frosts 17th, 22d, 30th; a cool, rainy month.

Cazenovia, N. Y.—Thunder-showers 10th, 11th, 15th, with hail 28th.

Depauville, N. Y.—Coolest June in seven years, except in 1869, and dry in places.

Angelica, N. Y.—Frosts 10th, 16th, 30th; sharp 17th; rain on ten days.

Little Genesee, N. Y.—Dry till latter part, and cool all month; ice 17th.

Buffalo, N. Y.—First strawberries 8th; Isabella grape blossoms 14th.

Newark, N. J.—A delightful month in temperature, and abundant rains.

New Germantown, N. J.—Auroras 21st, 26th; small hail 24th.

Greenwich, N. J.—Wheat harvest 16th; two weeks early; no hot weather.

Hamlinton, Pa.—Frost 30th; killed some vines; season very dry.

Dyberry, Pa.—First strawberries 4th.

Plymouth Meeting, Pa.—Terrific thunder 24th. Rainiest month since September, 1868.

Factoryville, Pa.—Cool month; rains too late to benefit hay crop.

Parkerville, Pa.—Dry till 12th; haying commenced 21st.

Carlisle, Pa.—Cutting clover 5th to 12th, barley 12th, wheat 19th.

Fountain Dale, Pa.—May dry, and June till 18th. Harvest early.

York Springs, Pa.—Aurora 10th; wheat harvested by 30th.

Tioga, Pa.—Light frost 17th, hard 30th. Month cold and very dry.

Grampian Hills, Pa.—Month variable, last part quite dry.
Greenville, Pa.—Frost 30th, injured corn in some places.
Newcastle, Pa.—Heavy northwest winds 10th to 15th; ice 30th.
Milford, Del.—Showers too light to aid early crops of fruit and grass.
Woodlawn, Md.—Auroras 10th, 11th, 12th, 14th; harvest ended 30th.
Sam's Creek, Md.—Hail 1.5 inches diameter, little damage here, 27th.
Johnsontown, Va.—Raspberries two weeks earlier than usual, 1st.
Hampton, Va.—Only one entirely clear day in June.
Comorn, Va.—Rain-fall of first six months of 1871, 21.56 inches; average of the six months for twenty-two years, 16.04 inches; June average of twenty-two years, 3.27 inches.
Vienna, Va.—Aurora 18th; June rather dry; crops backward.
Capeville, Va.—First heavy rain since May 17th—11th, 12th.
Wytheville, Va.—Rains partial; earliest harvest known here.
Statesville, N. C.—Harvest early; rust in oats—first in fifteen years.
Gowdeysville, S. C.—Heavy general thunder-storms 23d.
Berne, Ga.—Much thunder and lightning, with heavy rains, this month.
Atlanta, Ga.—Lightning and thunder nearly every day in June.
Coatopa, Ala.—Thunder-showers on sixteen days in June.
Huntsville, Ala.—Aurora 18th; many showers 11th to close.
Moulton, Ala.—Warm June; heavy rains; roasting ears on 25th.
Jacksonville, Fla.—Greatest rain-fall known in June; much thunder and lightning.
Pilatka, Fla.—Rainiest June known, and all thunder-storms.
Oakland, Tex.—Cotton opening 29th; very dry; corn suffering.
Ponchatoula, La.—Thunder-showers in this section every day.
Marion, Miss.—Excessive rains, moist air, high temperature.
Brookhaven, Miss.—Very wet to 11th; high winds 10th, 11th; peaches 11th; katydids 15th. Not one entirely clear day in June.
Clarksville, Ark.—Auroras, faint 12th; rosy streamers 17th.
Elizabethton, Tenn.—Much cloudy weather; hail and gale 25th.
Trenton, Tenn.—A dry month, but not injurious to crops.
Salem, Ohio.—Aurora 18th; destructive thunder and hail storm 23d; light frost 30th.
Kenton, Ohio.—Grass stiff and white with frost 30th.
Urbana, Ohio.—Beautiful aurora 17th. Harvest two weeks early.
Carthagena, Ohio.—Aurora 17th, 18th, 19th; cool 28th to 30th.
Jacksonbury, Ohio.—Harvest—barley 5th to 10th, wheat 15th to 22d.
Cincinnati, Ohio.—Auroras 9th, 17th.
Litchfield, Mich.—Frosts—heavy 14th, light 29th, 30th. Seven auroras in June. Crops generally two weeks earlier than usual.
Grand Rapids, Mich.—Frosts 9th, 29th; aurora 10th. Month of extremes.
Benzonia, Mich.—Killing frost 9th. Drought severe.
Vevay, Ind.—Faint aurora 17th; dewberries 24th; haying 27th.
Laconia, Ind.—Month warm and dry; crops suffering.
Knightstown, Ind.—Wheat harvest ended by 28th.
Laporte, Ind.—Thunder-storms 2d, 6th, 17th, 23d, 24th; aurora 10th.
Rising Sun, Ind.—Wheat cut 12th, (last year 21st;) aurora 18th.
Marengo, Ill.—Auroras 10th, 11th, 17th. Seventeen-year locusts appeared May 27th, very numerous and destructive to tender twigs from June 8th to 23d, when they began dying off rapidly.
Wyanet, Ill.—Hail-storm 9th; cut grain and other crops badly.
Hennepin, Ill.—Month pleasant; rain well distributed for crops.
Dubois, Ill.—Wheat harvest began 8th; aurora 17th.
Galesburg, Ill.—Month warm; frequent thunder-showers.

Mt. Sterling, Ill.—Bright aurora 10th; wheat harvested 30th.
Augusta, Ill.—Violent gale, thunder-storm 18th; red currants 26th.
Sturgeon Bay, Wis.—Frosts 16th, 21st; sharp 29th.
Geneva, Wis.—Locusts (seventeen-year) 1st; aurora 10th.
Rocky Run, Wis.—Bright aurora 17th; cherries ripe 20th.
Mosinee, Wis.—Frosts 7th, 16th, 29th, slightly injuring corn; tornado, thunder-storm, hail, doing some damage to trees and buildings, 18th.
Baraboo, Wis.—Drought to 21st, then rains and floods to 29th never before equaled here in June. Month cooler than May.
Minneapolis, Minn.—Strawberries 6th. Month cooler than usual.
Litchfield, Minn.—First shower to wet the ground 25th; violent gale, thunder, hail, doing much damage to crops, 30th.
Durant, Iowa.—Auroras 10th, 17th. Barley harvest began 27th.
Guttenberg, Iowa.—Seventeen-year locusts innumerable this month.
Independence, Iowa.—Many wells dry; streams very low.
Rockford, Iowa.—Heavy rain 22d, 23d; first in a long time.
Boonesboro, Iowa.—Hurricane 18th, doing great injury in its course; in Carroll County several persons killed and others severely injured.
Sac City, Iowa.—Severe gales 18th, 30th. For fifteen months fine weather.
Logan, Iowa.—Hottest June in twelve years—cucumbers cooked on the vines.
St. Louis, Mo.—Thunder-shower, hail, 2d; blood-red aurora 18th.
Rolla, Mo.—Frequent thunder. Month 5° warmer than last year.
Jefferson City, Mo.—Heavy thunder-storms 16th, 18th; rain all day 24th, 25th; splendid aurora, lighted up the whole horizon, 18th.
Corning, Mo.—Very hot, in the sun, 134° at five p. m. 26th.
Cave Spring, Mo.—Wheat harvest began two weeks earlier than ever here 3d; ended 22d; oats harvest began 29th.
Paola, Kans.—Ground very wet, hindering farm work, 30th.
Holton, Kans.—Very fine season for farmers, but heavy rains lately.
Burlingame, Kans.—Grand aurora 26th; thunder-storm, wind, rain, hail, doing much injury to the crops, 28th.
Council Grove, Kans.—Five days excessively damp air to 3d; again about the 19th.
Douglass, Kans.—Thunder-storm with tornado 16th; destroyed nearly all crops in its path, and about one hundred houses in El Dorado.
Santee Agency, Nebr.—Rain and hail 5th, 30th; auroras 10th, 17th.
Bellevue, Nebr.—Hail-storm 8th; auroras 10th, 17th; warm month.
Newcastle, Nebr.—A dry and windy June, with but little rain.
Denver, Col.—Very heavy thunder and hail storm 20th.
Laramie, Wyo.—Auroras 10th, 22d; hail 26th; hottest month known here; lightning and thunder frequent; much snow and rain fell on the hills. We never have smoky days here.
Deer Lodge City, Mont.—Snowed hard, but melted as it fell, 3d; heavy thunder-storm 13th; very dry month with high winds.
Missoula Mills, Mont.—Frosts, light 1st, heavy 25th; thunder-showers 2d, 3d, 13th.